NORMAL MIDWIFERY
FOR
MIDWIVES AND NURSES

G. W. THEOBALD

OXFORD MEDICAL
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BY

G. W. THEOBALD

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Dedicated

WITH SUPREME RESPECT AND PROFOUND ADMIRATION

TO ALL NURSES

AND MORE ESPECIALLY TO THOSE OF

ST. BARTHOLOMEW'S HOSPITAL, LONDON

AND

THE ADELAIDE HOSPITAL, DUBLIN

PREFACE

This book was commenced some three years ago, and embodies the lectures I gave to the nurses while I was Assistant Master at the Rotunda Hospital. My aim is to offer a simple book which shall contain all the theory that it is reasonable to expect a midwife to know in order to practise.

I should here like to pay my tribute to the Rotunda Hospital, which is not only a great clinical hospital which has earned in a peculiar degree a place in the affections of the Irish people, but a school of Obstetrics and Gynæcology which has exercised a profound effect on the midwifery of the British Empire. I acknowledge the keen sense of my gratitude to Dr. Gibbon Fitz-Gibbon, my teacher, and my admiration for those two ex-Masters, Sir William Smyly and Prof. Hastings Tweedy, who have done so much for the hospital, and who still are only too willing to help the institution and those connected with it.

I cannot mention all those who have helped me directly or indirectly with this book, but I wish to thank and acknowledge my indebtedness to Miss Butler and Miss Thornton, who were the senior Sisters in the Labour Ward while I was at the Rotunda Hospital. I should also like to thank Miss Cartmell, the senior Labour Ward Sister of the Leeds Maternity Hospital, not only for her loyal co-operation in the face of difficulties, but also for the cheerful way in which she undertook extra work in order that I might make certain observations which are referred to in this book.

Most of the illustrations are original. I have to thank Dr. J. S. Fairbairn and Prof. Tweedy and Dr. Wrench for their kindness in allowing me to borrow certain illustrations.

Finally, I wish to thank the publishers for the way in which they have studied my wishes in every possible manner.

My one regret is that as I read the proofs the ugly nominative everywhere stares me in the face. I felt, however, that it was advisable to keep the book more or less in lecture form, and so the first person was imperative.

G. W. T.

Bangkok, 1927.

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INTRODUCTION

But Shiphrah and Puah feared God, and did not as the King of Egypt commanded them, but saved the men-children alive.

EXODUS i. 17.

THE calling of a midwife is nearly as old as the race of mankind. It can require but little imagination to realize the very special function over which the midwife is called to preside. That maternal instinct which expressed itself in early years by protecting and loving dolls of rag or china, which blossomed with girlhood, that flowered in wifehood —that maternal instinct has found its supreme expression in the anguish and joy of bringing a child into the world. It is then her function to help and comfort the mother in her labour and to attend and guide into the world the child, emblem of the union of man and woman, partaking of the nature of both, and potentially the ruler of the world.

We in medicine are proud of Hippocrates, the father of medicine, and of Sydenham, the father of English medicine, but hundreds of years before Hippocrates was born Shiphrah and Puah had earned undying fame by refusing to obey the brutal orders of the Pharaoh, and had feared God and saved alive the men children. Owing to their faithfulness the child Moses was born alive, and fulfilled his destiny as the leader and deliverer of the Jewish people. Shiphrah and Puah are names which should be emblazoned on the Charter of Midwives—their names will never die.

For many centuries the art of midwifery was practised solely by midwives, and a doctor was only called in for

emergencies, so that his arrival presaged death to the mother or the child, or to both. In 1663 Louis XII. of France decided that his favourite mistress, Madame la Vallière, should be attended at her confinement by a surgeon named Julius Clement. Nobody knows why the king made such a decision, but we do know that either out of interest or concern he watched the delivery from behind a curtain. He was delighted with the performance, and promoted Julius Clement to high honour.

Early in the next century the forceps first came into use in England, and it is interesting to note that Chamberlen, their inventor, was the first person to advocate the registration of midwives.

Towards the end of last century the maternal death-rate in maternity hospitals was so appalling that many of them were almost forced, by the pressure of public opinion, to close their doors. Since Lister's teaching has been applied in hospitals, the results have improved so wonderfully that notwithstanding the risk of congregating so many mothers together in one building, puerperal septicæmia has become a very rare disease.

The results in private practice, however, have not sensibly improved during the last quarter of a century. Three thousand women in England and Wales die every year as a direct result of childbirth. One-third of these deaths are caused by puerperal sepsis. I have no hesitation whatever in stating that at least two-thirds of these deaths are avoidable.

During the last twenty years the Registration of Midwives Act has been in force, Ante-natal Clinics and Babies' Welfare Centres have sprung up all over the country, a vast amount of money and official and voluntary energy has been expended, but the results have not improved. Considering that two-thirds of the confinements in this country are conducted by midwives, it is not out of place to consider

the problem in a text-book written for nurses. I do not for one moment mean to suggest that the midwives are solely at fault, for I am confident that the chief blame lies elsewhere.

"And Eve conceived and bore Cain and said, 'I have gotten a man from the Lord'." She was delivered without any vaginal examination, without forceps, without control of the fundus during the third stage—in short, without any interference of any kind. Ninety-five per cent of women in this country would deliver themselves as Eve the first mother did, if only they were left alone. It is meddlesome, interfering midwifery that is responsible for the deplorable results we have described. Midwifery, the backbone of every practice, the only branch of medicine in which it is possible for the attendant to kill a healthy woman by lack of skill, is still considered the most unimportant subject in the medical student's curriculum, while the public still imagines that a general practitioner should be able to perform every operation in obstetrics in the most unsuitable surroundings. The ninety-five normal cases should be delivered by the doctors and midwives. The five abnormal cases should be sent to some suitable institution where they can receive skilled attention. They should be sent, however, before they are contaminated and worn out.

At present if a midwife is called to a case that is obviously abnormal she proceeds to make one or more vaginal examinations before sending for the doctor. He then makes one or more vaginal examinations before deciding to send the case into hospital. By the time the patient is seen by the person who is going to carry out the treatment, she is, only too often, already infected. A midwife should never make a vaginal examination in a case which she believes to be abnormal, neither should a doctor make a vaginal examination in such a case unless he is prepared to carry out the treatment himself.

During one period of three weeks three patients were admitted into the Leeds Maternity Hospital illustrating what I mean. The first was a woman who had been in labour for nearly three days. When she was admitted her temperature was 100° F., and the head was still high above the brim. The midwife had been with her all the time and had made frequent vaginal examinations. She was a primipara with an extreme degree of contracted pelvis, and died of puerperal sepsis. The fact that the head was not engaged when labour started was abnormal, and the patient ought to have been sent to hospital forty-eight hours earlier, and without a single vaginal examination having been made.

The second was a case of placenta prævia. She was seven months pregnant, and had started to bleed nearly a week before she was sent to hospital. Seven vaginal examinations were made before she arrived in hospital, and she died of puerperal sepsis.

The third case was also one of placenta prævia. She had bled per vaginam some three weeks before her admission to hospital. This bleeding had stopped, but had recommenced at 5 A.M. on the morning of her admission. Although the bleeding was very severe, and although the patient lived close to the hospital, she was not admitted until 7 P.M. She then had a pulse rate of 146 and a subnormal temperature, and died a few hours later as the result of shock and hæmorrhage.

All these cases were clearly abnormal. If a woman who is seven months pregnant bleeds there is something the matter, and she should be sent without any delay, and without any vaginal examination being made, to an institution where she can be treated. These are not isolated cases. Such patients make up the greater proportion of the 3000 mothers who annually die in this country. They have no right to die.

The purpose of this book is to discuss normal labour,

and merely to refer to abnormalities. When a nurse attends a woman in labour she has to decide whether the case is normal, and that can be easily done. She can discover :

1. Is the patient well, or is she ill ?
2. Is the presenting part a head ?
3. Is the head engaged in the pelvic brim ?
4. Is there any albumin in the urine ?
5. Is there any history of fits or convulsions ?
6. Is there any bleeding or history of bleeding ?
7. Is there any history of previous difficult labour ?

She can learn to follow the head down into the pelvis by abdominal palpation, and to palpate it through the perineum. She can learn the signs and symptoms of the onset of the second stage of labour.

No vaginal examination ought ever to be made in a normal case of labour. If it is necessary to estimate the dilatation of the external os in order to know when it is safe to leave the patient, it can be easily done by making a rectal examination. This is not theory, for I have taught a number of nurses who will testify to the truth of these statements. The average nurse can estimate the dilatation of the external os uteri by rectal examination just as well as by vaginal examination, and with absolute safety to the patient.

I am confident that if midwives were forbidden :

1. To make a vaginal examination ;
2. To deliver any breech presentation ;
3. To control the fundus during the third stage of labour,

there would be an enormous improvement in the midwifery of this country. Sepsis could be almost eliminated if vaginal examinations were not made, and if operative midwifery, other than the application of forceps, was performed only in suitable institutions.

It is a radical change in the attitude towards midwifery that is required, and the medical profession needs to alter its views just as much as does the general public. The present state of affairs is intolerable. The fearful maternal wastage is known to the man in the street. He is becoming alarmed, and unless an improvement does take place, I think there is no doubt that changes, whether for the better or for the worse, will, in the not far distant future, be forced on the profession by Parliament.

One thing is absurd, and that is to try to improve matters by increasing the theoretical knowledge of the midwife. A Sister in the medical ward is not expected to discuss the pathology of bronchitis, to percuss a chest, or listen for râles or crepitations, neither should a midwife be expected to know anything about the pathology or treatment of abnormal labour. She should be able to recognize that the labour is abnormal, but should not be required to make any diagnosis.

Much more could be written, for one writes with a burning zeal. There is nothing so tragic in this world as to see a young mother die as the result of fulfilling the function for which she was created, to realize that her babe, deprived of a mother's love and care, will probably wither and die, to picture a broken hearth, and to know that the sacrifice was unnecessary. The individual midwife has a great responsibility. Let her face the facts and do her best to improve the profession that can boast the honourable names of Shiphrah and Puah.

CHAPTER I

ANATOMY AND PHYSIOLOGY

I will praise thee; for I am fearfully and wonderfully made.
PSALM CXXXIX. 14.

THE human body consists of a head, a trunk or body, two arms and two legs. The head is a bony box in which is contained the brain, which is the seat of the intellect and soul of man. The trunk is divided into two parts, the thorax and the abdomen, by means of a strong muscle called the diaphragm.

In the thorax or chest there are to be found the heart and the lungs. The heart is a fleshy pump which drives blood all over the body. Now the human body is in one respect like a motor car or motor cycle—it is an internal combustion engine. The power is obtained in a car by burning petrol. In the human body some of the food taken in combines with oxygen from the atmosphere, and is burned, and provides the energy required. The oxygen required is obtained by means of the lungs. The lungs consist of millions of small spaces, round the walls of which run minute blood vessels, with such thin walls that gases can pass in and out of the vessels very quickly. An inside wireless aerial running round the walls of a room might represent the blood vessel, while the room would represent the air space.

When you breathe out, you get rid of the carbonic acid gas from the body. When you take a breath fresh air containing oxygen fills the millions of air spaces. That is why it is so important to keep the windows open, so that there is plenty of fresh air in the room to help to provide the

"petrol" for the body, and at the same time an exhaust to get rid of the foul gas which we breathe out.

The heart pumps blood from its right chamber through the lungs where the bad gases escape, and the blood gets a fresh supply of oxygen and returns to the left side of the heart. This pure blood is pumped all over the body through thick walled vessels called arteries. The impure blood returns to the heart through thin walled vessels called veins.

The abdomen contains the: (1) liver, (2) the spleen, (3) the intestines, (4) the kidneys.

The body consists of these various parts, which are all made up of tiny cells, which you cannot see without the help of a microscope. The body is made up of thousands of millions of cells. In England there are to-day some 30 millions of people. There are doctors, and lawyers and clergymen, and bricklayers, and miners and engineers, and all these callings and many others are necessary for the welfare of the country. It is impossible for one man to do more than one job, and so there is a division of labour—each profession doing a certain piece of work. In the same way millions of cells join together to form a certain organ, such as the brain or liver—which does a certain job of work. Each organ does its own work, and all are necessary for the welfare of the body.

The Intestines.—Food is taken in by the mouth and chewed. It passes for 18 inches down a tube called the *œsophagus* into the stomach. It then passes through more than thirty feet of intestines. The intestines are divided into (*a*) the small intestines and (*b*) the large intestines. Most of the food that the body requires is absorbed into the blood stream from the small intestines. Most of the water that the body requires is absorbed from the large intestines. The remainder of the food passes out through the anus, or opening of the back passage, and is called fæces.

Some of the food which is absorbed is immediately burnt, and provides energy for the body. A lot of the food is taken to the liver.

The Liver.—The liver is a large organ situated chiefly on the right side of the body, immediately below the dia-

phragm. It is the chemical workshop for the body, and stores and changes food in a wonderful manner.

The Spleen is a much smaller organ which lies on the left side of the body immediately below the diaphragm, and has many duties to perform, but is chiefly occupied in getting rid of old blood corpuscles.

The Kidneys are a pair of organs, one on either side of the backbone. They are " kidney " shaped, and get rid of most of the waste products from the body. The urine in which these products are dissolved passes from the kidneys by two narrow tubes, called the *ureters*, into the bladder.

The Skin is one of the most important organs of the body. Through the pores of the skin a certain amount of the waste products of the body escape, dissolved in the sweat. A healthy, well-acting skin is essential to a healthy body.

The Skeleton.—The skeleton consists of bone. Bone consists largely of salts of lime, but the bones of the body are living tissue. In the arms and the legs are long bones, containing marrow, in which most of the red corpuscles of the blood are manufactured.

The trunk is supported by the *vertebral column*, which consists of a large number of small bones held in position by muscles and ligaments. Where the trunk joins the limbs there is a bony ring called the *pelvis*. The weight of the body is supported by the legs. The legs actually support the bony pelvis, and the support of the pelvis is passed up to the rest of the body through the vertebral column.

The heart and the lungs are protected by twelve ribs on either side, which are attached to the back bone behind, and meet in the chest bone or *sternum* in front. At the lower end of the sternum there is a triangular piece of cartilage called the *xiphisternum* or *ensiform cartilage*. The abdomen is not protected by any bones in front.

Let us just say a few words about the blood before discussing the pelvis.

The blood is a bright red fluid with a sweetish taste. If you look at blood under a microscope you will see that it contains little corpuscles shaped like round biscuits. There are about thirty billion (30,000,000,000,000) blood corpuscles

in a man. These red corpuscles are manufactured in the marrow of the long bones, and destroyed in the spleen. They carry the oxygen from the lungs to every cell in the body and collect the carbonic acid gas —the bad gas—from the cells, and take it to the lungs. There are not nearly so many white blood corpuscles. They are manufactured in the lymph glands of the body, and have the important duty of helping the body to resist disease.

The Pelvis.—The pelvis is a bony ring made up of several bones. The lower part of the back bone is called the *sacrum*. It ends in a small bone called the *coccyx*, which is all that is left of a tail. We do not sit down on our " tails ", but on two solid pieces of bone, one on either side, called the *tuber ischii*. Passing from the sacrum behind, on either side towards the front are the two hip bones. The ridge, or top of the hip bones on either side, which prevents the skirt from falling down is called the *crest of the ilium*. The crest of the ilium comes to a point in front, and the two points are called the *anterior superior iliac spines*.

In front two narrow bones meet and are called the *pubes*. They join in the middle line, and the junction is called the *symphysis pubis*. It is then seen that the pelvis, or lowest part of the abdomen, is a box-like space, bounded :

1. Behind by the sacrum.
2. In front by the pubic bones.
3. On either side by the wings of the iliac bones.

The inlet to the pelvis is bounded :

1. Behind by the promontory of the sacrum.
2. In front by the top of the pubic bones.
3. On either side by a part of the iliac bones.

The promontory of the sacrum is the top part of the sacrum, which bulges into the inlet of the pelvis.

In order to enter the inlet of the pelvis you would have to make a hole in the lower part of the abdominal wall.

The outlet of the pelvis is bounded :

1. Behind by the coccyx or bottom portion of the sacrum.
2. In front by the bottom of the pubic bones.
3. On either side by the tuber ischii—the bones on which we sit.

When labour starts the child's head is engaged in the inlet of the pelvis. The head together with the body of the child has to pass through the pelvis in order to be born.

It is clear that the depth of the sacrum is greater than that of the pubic bones, and the child has to undertake a longer journey to escape from the posterior than from the anterior wall of the pelvis.

It is also clear that if for any reason the bony pelvis is too small, it will be impossible for the child to be born. Such a pelvis is termed "contracted" and is caused by several diseases, the most important of which is rickets.

The pelvis then consists of two *Innominate Bones*, the *Sacrum* and the *Coccyx*, or tail bone.

The Innominate Bones consist during childhood of three separate bones, the

1. Ilium.
2. Ischium.
3. Pubis.

In an adult they are joined together at the acetabulum, or socket, into which the head of the femur, or thigh bone fits.

The sacrum consists of five bones, and the coccyx of four little bones. The nine bones are joined together in an adult.

CHAPTER II

ANATOMY AND PHYSIOLOGY—*continued*

The pelvic bones are lined by fascia, and the organs of the abdomen are prevented from "dropping out" by a sling of muscles called the Levator Ani.

In the pelvis there are several important structures :

1. The Rectum.
2. The Bladder.
3. The Uterus.
4. The Ovaries.

The Rectum is the lowest portion of the large intestines, and lies in front of the sacrum. It ends in a short canal which opens on the surface of the body at the *anus*. The anus is a muscular ring, which only opens to allow the fæces to escape.

The Bladder is a muscular bag which lies behind the pubic bones. It is a receptacle to hold the urine which is secreted by the kidneys. When the bladder contains a certain amount of fluid, it sets up a desire to pass water, which escapes by means of the *urethra*.

The Uterus is a pear-shaped, muscular organ which lies between the rectum and the bladder. It is packed or embedded in a mass of tissue called the *parametric tissue*, which consists of blood vessels, muscle fibre, and other forms of connective tissue. This parametric tissue serves as a bed in which the uterus lies, and also provides the main support which prevents the uterus from tumbling out through the vagina.

The uterus consists of a body and a neck. The neck is called the Cervix, and is closed above by a ring of muscle

called the Internal Os. Below it is closed by a similar ring called the External Os. At the top part of the body of the uterus, which is called the *fundus*, are two tubes, one on either side, which pass out to the sides of the pelvis. They are called the Fallopian tubes. The egg-cells or ova from the Ovaries are fertilized in these tubes, and then pass along them into the uterus. When the uterus becomes pregnant it enlarges. Each individual muscle fibre becomes eleven times its original size, so that the uterus grows out of the pelvis, and occupies a large space in the abdomen.

The Ovaries are two almond-shaped bodies which lie one on either side of the pelvis, close to the ends of the fallopian tubes. When a little girl is born each of her ovaries contains about 100,000 eggs or ova. One of these ova, which are much too small to be seen with the naked eye, may one day develop into a child.

The uterus, ovaries, bladder and rectum, are partly covered by a smooth lining membrane called the peritoneum. This peritoneum is continuous with the peritoneum which forms a closed sac, which contains or covers the contents of the abdomen.

You will see that the peritoneal cavity is in direct communication through the Fallopian tubes with the uterus and the vagina. That is why it is so dangerous to make a vaginal examination during labour.

If any part of the body gets inflamed it is referred to as an "-itis." Thus we speak of peritonitis and parametritis.

The part of the peritoneum which covers the Fallopian tube and the parametric tissue is called the broad ligament. There are therefore two broad ligaments, one on either side.

The Generative Organs or Vulva.—The "private parts" of a woman are termed the external generative organs or vulva.

The Mons Veneris.—Covering the pubic bones in front is a pad of fat covered with hair. It is called the mons veneris.

Between the thighs there are two lips called the Labia Majora. They consist of fat covered with ordinary skin on which are a few hairs.

If the Labia Majora are separated, two small moist LABIA MINORA are exposed.

In front the labia majora divide to enclose the glans of the small rod-shaped clitoris. A large number of veins

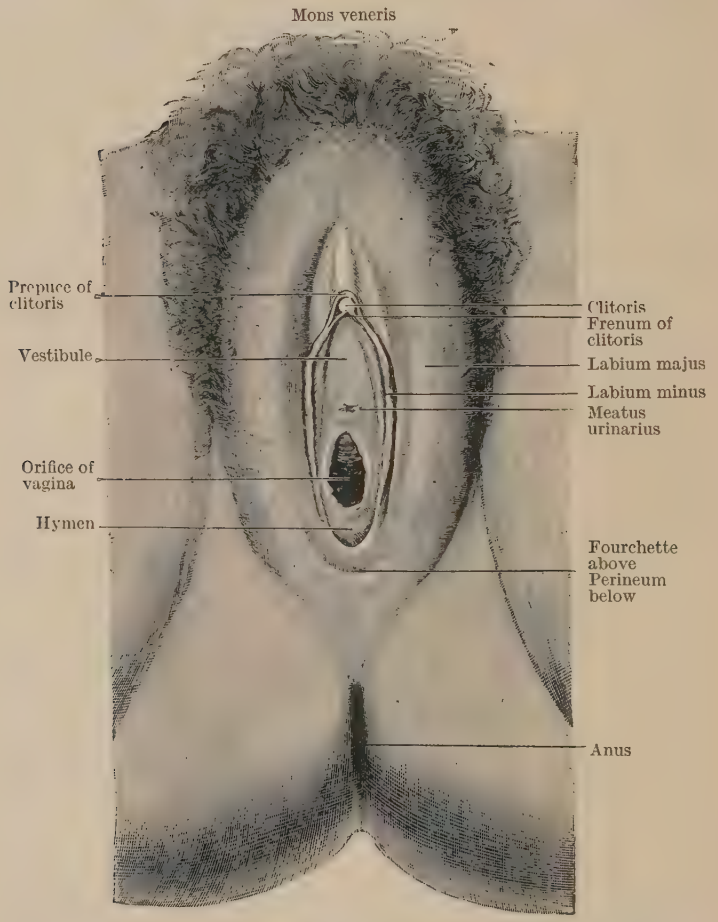


FIG. 1.—The external generative organs. (From Fairbairn's *Text-book for Midwives*.)

supply the clitoris. They occasionally get torn during delivery, so that there is very free bleeding.

In between the labia minora are two openings. The front one is the opening or MEATUS of the URETHRA, or

water passage. This is the opening through which a catheter is passed into the bladder.

Behind the meatus of the urethra is the vagina or womb passage. In a virgin it is partly closed by a small piece of skin, called the *hymen*. This hymen gets ruptured, and after labour forms tags of skin called the *carunculae myrtiformes*.

The Vagina is the canal into which the cervix projects, and opens by means of the external os uteri. It is longer behind than it is in front. The child is born through the vagina.

The Anus or opening of the back passage lies farther behind. The vagina, therefore, lies between the urethra in front and the rectum and anal canal behind.

The Perineum is that tissue which lies between the vagina and anus. It may get torn during labour. If the tear extends through the sphincter, or muscular ring surrounding the anus, it is said to be a complete tear.

The True Conjugate, $4\frac{1}{2}$ inches. The measurement between the promontory of the sacrum and the top of the symphysis pubis is called the true conjugate.

The Diagonal Conjugate, 5 inches. The measurement between the promontory of the sacrum and the bottom of the symphysis pubis is called the diagonal conjugate.

The diagonal conjugate can be measured when making a vaginal examination. The true conjugate is $\frac{1}{2}$ inch to 1 inch less than the diagonal conjugate.

Menstruation.

Every month there is a flow of blood from the uterus of an adult woman, which lasts from two to five days. If a woman does not menstruate or have her monthly periods, she is said to be suffering from *amenorrhœa*. There are three occasions when amenorrhœa is normal or physiological:

1. Before a girl reaches puberty. In England puberty is reached at about the fourteenth year.
2. During pregnancy.
3. After the change of life or menopause. The change of life usually occurs somewhere between the forty-sixth and the fiftieth years of life.

The uterus of a healthy woman prepares itself every month for a pregnancy. If a pregnancy does not take place its lining membrane or endometrium sheds itself. Menstruation may therefore be looked upon as a false labour.

A ripe egg or ovum is shed from the ovary once a month, and probably enters the Fallopian tube somewhere about the fifteenth day of the inter-menstrual period.

If one of these ova becomes fertilized it passes into the uterus and buries itself in the endometrium, which becomes thickened to receive the ovum and is then called the Decidua. Menstruation then ceases until some weeks have elapsed after the birth of the child. The ovum grows and the uterus increases in size to accommodate the growing ovum.

This growing ovum receives all its nourishment from the mother's blood. This nourishment is obtained through the placenta.

The Placenta when it is born consists of a fleshy mass, consisting of about fifteen *cotyledons* or lumps of tissue. It is covered on one side by a smooth, glistening membrane, which forms the sac in which the child was contained in a fluid called the liquor amnii. This membrane can be separated into two membranes. The one is attached to the margin of the placenta. It is the thicker of the two, and is called the *chorion*. The other membrane, called the *amnion*, can be stripped off the shiny or fœtal surface of the placenta, and is found to be attached round the fœtal end of the umbilical cord. The other surface of the placenta is fleshy and is called the maternal surface.

There are a few different types of placentæ about which it is necessary for you to know something.

A Battledore Placenta.—The cord, instead of being inserted in the centre of the placenta, is inserted near its margin.

Bipartite and Tripartite Placentæ.—Sometimes the placenta is divided into two or more lobes. If there are two lobes it is called bi-partite, while if there are three lobes it is called tri-partite.

Succenturiate Placenta.—Very occasionally a small accessory lobe develops at a distance from the main placenta. This succenturiate placenta is apt to be left behind in the

uterus and be the cause of either primary or secondary post-partum hæmorrhage. It can be diagnosed by seeing the vessels running to and from it, torn near the margin of the main placenta.

Placenta Velamentosa.—In this variety the cord is attached to the membranes at some distance from the

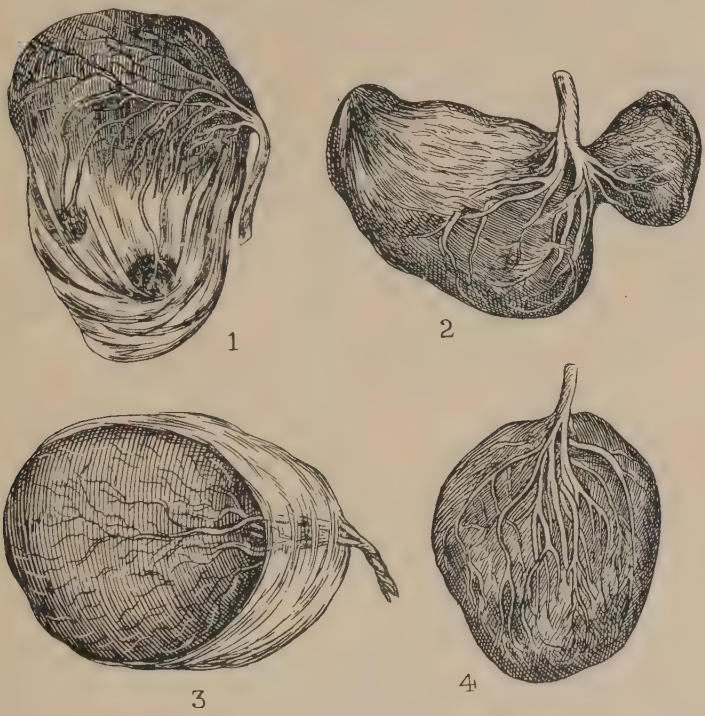


Fig. 2.—1. Succenturiate placenta. 2. Bipartite placenta. 3. Placenta velamentosa. 4. Battledore placenta. (Redrawn from Hirst's *Text-book of Obstetrics*.)

placenta. These vessels may be torn so that the child bleeds to death before it is born.

The Umbilical Cord is a smooth, soft cord in which are embedded three blood vessels—two umbilical veins and one umbilical artery. The blood from the child is pumped into the placenta by the fœtal heart, while the blood containing nourishment from the mother passes along the umbilical veins to the child.

The child does not use its lungs, when it is in the womb. The blood in the umbilical veins is the pure blood which contains the nourishment and the oxygen breathed by the mother. The carbonic acid gas from the child passes through the umbilical artery into the placenta, and escapes through the mother's lungs.

As soon as the child is born it breathes. For the first time it uses its lungs. Every time you deliver a baby you witness a wonderful experiment, for until that first breath is taken, those lungs have never been tested. They are like a beautiful engine made by an engineer. It is not until he runs it that he knows whether it will work.

Following on that important change, the child's heart for the first time pumps blood through its lungs. The child can no longer get its oxygen from its mother, and so within a minute from the birth of the child, two important changes occur :

1. The child breathes, and expands its lungs.
2. The heart for the first time pumps blood through the lungs.

The Baby.

There are a few points about the anatomy of the fœtal skull that it is necessary for you to know. Take a baby on your lap and sit in front of the fire.

The Anterior Fontanelle.—If you pass your finger up in a straight line from the bridge of the nose towards the back of the skull, you will find a lozenge-shaped opening between the bones. This opening is called the anterior fontanelle. The fontanelle is bounded by four bones. In front there are the two Frontal Bones, and behind the two Parietal Bones.

If you pass your finger farther backwards, still keeping to the middle line of the skull, you will come to another opening called the Posterior Fontanelle.

The Posterior Fontanelle is smaller than the anterior fontanelle, is triangular, and is bounded by only three bones. In front are the two parietal bones, while behind is the occipital bone.

The Occipital Bone lies at the back of the skull, and

reaches from the posterior fontanelle to the top of the neck. It reaches part of the way towards the ears, where it joins on either side with the temporal bone. Behind it joins with the top of the neck, and in the middle line there is a marked lump or swelling on the bone called the External Occipital Protuberance. This is an important point from which measurements are taken.

The Parietal Bones are two bones, one on either side, which form the vault of the skull. They join in front with

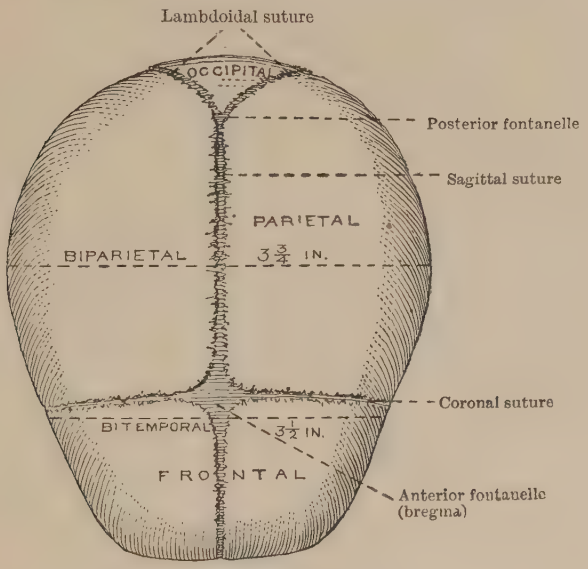


Fig. 3.—The fœtal skull from above, with the diameters. (From Fairbairn's *Text-book for Midwives.*)

the frontal bones, and behind with the occipital bone, and below and on either side with the temporal bones. The places where bones join with one another are called sutures. There is only one suture that it is necessary for you to know by name, that is the Sagittal Suture. It lies in the middle of the top of the skull, and is the place where the parietal bones join with each other. In a baby the bones are not firmly joined together, so that one bone can pass over another and allow the child's head to alter in shape. This is a very important factor when the pelvis is contracted, and

is called Moulding. One parietal bone slides for some distance over the other parietal bone, and the frontal and occipital bones may slide over the parietal bones. When the child becomes older the bones get joined together by a bony union.

The Frontal Bones are two bones, one on either side, which join behind with the parietal bones, and on either side with the temporal bones, and in front with the cheek bones. Together they form the forehead.

The Temporal Bones are two hard bones, one on either side of the skull. The ears are attached over the temporal bones. They join in front with the frontal bones, behind with the occipital bone, and above with the parietal bones. These bones are very hard and form part of the base of the skull. The measurement taken between these two bones is called the bitemporal diameter, and cannot be lessened by moulding.

Measurements.

The measurement round the baby's skull should be about 13 inches. The tape measure should be laid on the forehead, and be passed round the back of the head at the level of the external occipital protuberance. The average baby should weigh about 7 pounds. The measurement from the head to the heels when the baby is stretched on a measure, should be 20 inches.

Antero-posterior Diameters.

It is necessary to use some form of calipers to obtain the following measurements of the fœtal head:

1. Suboccipito-Bregmatic Diameter, $3\frac{3}{4}$ inches.—The suboccipito-bregmatic diameter is the measurement from the anterior fontanelle in front, to just below the external occipital protuberance behind. This is the largest diameter which should engage in a normal vertex presentation, when the head is fully flexed.

2. Occipito-Frontal Diameter, $4\frac{1}{2}$ inches.—From the forehead in front to the external occipital protuberance behind. This is the largest diameter which engages in an

unreduced occipito-posterior presentation, when the head is not fully flexed.

3. Occipito-Mental or Mento-Vertical Diameter, $5\frac{1}{4}$–$5\frac{1}{2}$ inches. — From the chin in front to the posterior fontanelle behind. This is the largest diameter which engages in a brow presentation, when the head is lying midway between flexion and extension.

4. Cervico-Bregmatic Diameter, $3\frac{3}{4}$ inches.—From the top of the neck in front to the anterior fontanelle.

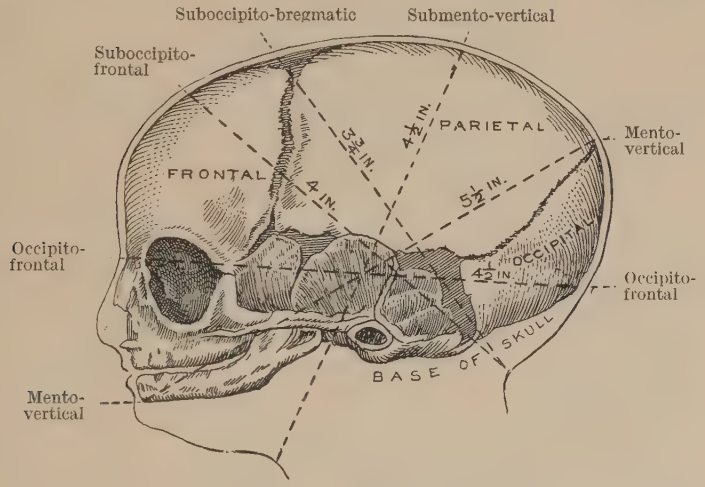


Fig. 4.—The fœtal skull from the side, with the diameters. (From Fairbairn's *Text-book for Midwives.*)

This is the largest diameter which engages in a face presentation, when the head is fully extended.

The two following diameters engage in every case of labour.

Transverse Diameters.

Biparietal Diameter, $3\frac{3}{4}$ inches.—This is the largest measurement that can be obtained between the two parietal bones, when the point of the calipers are kept at right angles to the sagittal suture.

This diameter may be considerably reduced by moulding.

Bitemporal Diameter, $3\frac{1}{2}$ inches.—This is the measure-

ment between the two temporal bones, and cannot alter with moulding.

It will be seen that the two largest diameters which engage in a normal case of labour are the suboccipito-bregmatic, and the biparietal; and they both measure $3\frac{3}{4}$ inches. These are the only two measurements that it is necessary for you to remember.

CHAPTER III

PREGNANCY

My substance was not hid from thee, when I was made in secret, and curiously wrought in the lowest parts of the earth.

Thine eyes did see my substance, yet being unperfect; and in thy book all my members were written, which in continuance were fashioned, when as yet there was none of them.

PSALM CXXXIX. 15 and 16.

THE period of Pregnancy is usually estimated to be about 280 days or 10 lunar months, and it is always well to refer to the period of pregnancy in weeks or lunar months.

Many women feel particularly well when they are carrying. They have not the bother of the menstrual periods, and the growing child probably causes secretions in the body which make them feel more energetic. Clearly those who suffer much pain at their periods are never so happy as when pregnant.

On the other hand pregnancy is a very trying time to a large number of women. After the first six weeks the growing uterus irritates the bladder, and causes a frequent desire to pass urine. The morning sickness, which affects at least 60 per cent of pregnant women between the sixth and sixteenth weeks, is very unpleasant. Then too, the breasts often become painful during the early period of gestation.

After the end of the sixth month the weight of the child becomes noticeable. It is a very real burden to have to carry eight or more extra pounds in the abdomen, especially when the movements of the fœtus tend to rob the woman of her sleep.

Different classes of women are affected differently. The educated, sensitive lady is acutely conscious of her condition,

hates to be observed by other people, and tries to hide herself from their ugly glances and idle curiosity until the confinement is over. The working woman is not usually worried with such feelings, but is often distressed at the prospect of another mouth to feed, and is upset at having to stop her own wage-earning because of her condition. Primiparæ are always nervous, fearful of the ordeal through which they must pass, which is not usually made less terrible by thoughtless remarks and the experiences related by relatives and friends.

The mental state of a pregnant woman is of the utmost importance. She should be made to realize that pregnancy is a natural event, and that she should live, and eat and behave in her normal manner. In some countries a pregnant woman is envied and honoured. New Zealand is probably the one country in the British Empire which rivals the East in this respect.

I know of one charming woman who was made happy when the priest told her that she was carrying a soul for God. Different women must be treated in different ways, but a great effort should be made to remove feelings of shame and fear, and to make the woman realize that she is fulfilling her highest destiny, and is in very deed working with the Almighty in the procreation of a child in the image of his Maker.

Various physiological changes occur as the result of pregnancy. The ovary arranges for an increased blood supply to the uterus and breasts. As a result of this increased blood supply various changes occur :

1. The uterus becomes larger and softer, and keeps increasing in size so as to accommodate the growing fœtus.
2. Owing to an increase in the size of the veins the vagina and cervix become violet in colour.
3. There is an increase of warmth and moisture which tends to cause discomfort in the region of the external genitals.
4. The breasts increase in size and prepare to secrete milk.

The Uterus.

12*th Week.*—The fundus can be palpated through the abdomen any time after the 12th week.

24*th Week.*—The fundus reaches to the level of the umbilicus.

36*th Week.*—The fundus reaches to the level of the ensiform cartilage.

40*th Week.*—The fundus falls to the level at which it lies during the 34th week.

These positions are only approximate, and vary considerably. The level for the 28th week is a third of the distance between the umbilicus and ensiform cartilage, above the umbilicus.

At the 32nd week the fundus should be half-way between the position for the 28th week and the ensiform cartilage.

The only constant position is that of the fundus at the 24th week, when it lies at the level of the umbilicus.

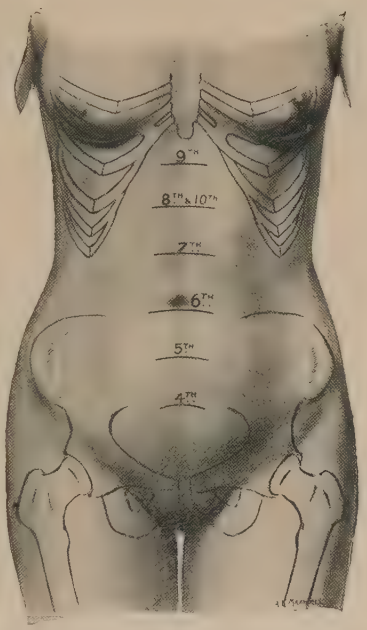


FIG. 5.—Height of the uterus at different months. (From Tweedy and Wrench's *Practical Obstetrics*.)

PRIMIPARÆ. — At or about the 36th week the head engages and the uterus falls forward so that the level of the fundus occupies a lower level in the abdomen. Many women are very conscious of this "dropping of the womb" and some will volunteer the statement that they suddenly found it was more difficult to walk. Associated with this dropping of the uterus, there is often an increased frequency of micturition. During the last few weeks of pregnancy many women are constantly wet, and always void urine when they cough or make any sudden movement. If a primipara has very strong abdominal walls the uterus may not drop, and

the fundus will remain at the level of the ensiform cartilage until labour commences.

Multiparæ.—In the case of a multipara "dropping" occurs more often at the 38th week when the head engages. In not a few cases, however, the "dropping" occurs at the 36th week. The symptoms are the same as in primiparæ.

Breast Changes.

1. The breasts increase in size.
2. Veins become prominent on their surface.
3. There is usually a certain amount of pain in the breasts during the first three months of pregnancy. This pain is a valuable help in the early diagnosis of pregnancy.
4. The nipples increase in size and become darker.
5. The area surrounding the nipple becomes darker in colour, and is termed the areola.
6. A second ring of pigmentation outside the areola forms towards the end of the fifth month. It is not so marked and is called the secondary areola.
7. Little raised whitish areas about the size of sago seeds are to be seen round the nipple, especially at the junction of the primary and secondary areolæ. These areas are called Montgomery's follicles and are really enlarged sebaceous glands. They are noticeable after the fifth month.
8. Colostrum may be expressed from the nipples any time after the 16th week.

There is a general increase in pigmentation of the whole body. Two areas other than the breasts may exhibit pigmentation in a marked degree.

1. *The Face.*—Occasionally marked patches of dark pigmentation the shape of a butterfly's wings are to be seen on both cheeks.
2. *The Abdomen.*—There is usually a dark line which stretches in the middle line of the abdomen, from the ensiform cartilage to the pubes. It is called the linea nigra.

Striæ Gravidarum.—The increasing size of the uterus stretches the skin of the abdominal wall. The elastic fibres of the true skin rupture and pink streaks or striæ can be observed, especially in the lower part of the abdomen. These pink striæ gravidarum become white after the confinement is over.

Sometimes hardly any striæ are visible on the abdomen of a woman at term. The subject is considered in the chapter on normal labour. The pregnant mother should rub warm olive oil into her abdomen in front of the fire at frequent intervals. The oil tends to prevent the striæ from appearing.

The Hygiene of Pregnancy.

Bowels.—There should be at least one action of the bowels, preferably two, every day. In order to achieve this result liquid paraffin, or some suitable laxative, should be taken regularly during the whole pregnancy.

Bladder.—The external genitals are apt to feel hot and "itchy". This is caused, partly by the increased moisture of the parts due to the pregnancy, and partly by the involuntary passing of urine. The patient should be encouraged to take a tepid bath every morning. In any case the "parts" should be washed morning and evening with tepid water, but no vaginal douching should be allowed. After passing her urine the woman should dry herself carefully, and dust the "parts" with talcum powder.

Exercise.—The woman should be allowed to do what she likes, providing she does not allow herself to become tired. Clearly such exercises as hunting or violent tennis should not be permitted. Bicycling in reason does not do any harm.

Clothes.—Ordinary clothes should be worn. It is an advantage if the weight of the clothes can be supported by the shoulders. The old-fashioned bloomers are better than open knickers. In most cases the weight of the abdomen can be well supported by the "let out" corsets. If the patient is wealthy she will prefer to be measured for a belt at the instrument makers. If she is poor, and her corsets are uncomfortable, she can make an excellent support from a

piece of ordinary roller towelling. This she can either pin in position, or can shape. The cloth should be cut wide for the front of the abdomen, and taper to a narrow strip on either side. These narrow strips are passed round the body and fastened in the front by a suitable buckle.

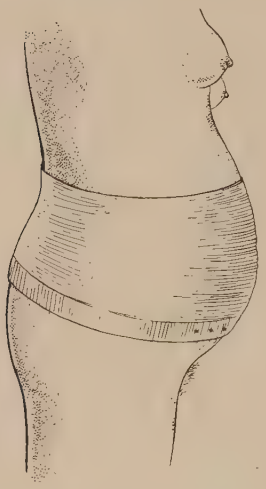


Fig. 6.—The home-made "belt", shaped from a piece of roller towelling.

Food.—The pregnant woman should eat ordinary plain food, and have only three meals in the day. It will be almost impossible to break a large number of women of the afternoon tea habit, and so you will have to allow four meals. Under no circumstances allow the wicked habit of milk and light refreshments between meals. Encourage her to drink plenty of water first thing in the morning, last thing at night and in between meals. The water may be hot or cold. Drinking with meals should be discouraged. Fruit and vegetables are of great service to the pregnant woman.

Advise all your patients to take iodized salt, instead of the ordinary table salt. There is reason to believe that if the mother gets sufficient iodine during the pregnancy, it may be possible to prevent diseases of the thyroid gland occurring in her children.

Breasts.—I cannot impress upon you too much the importance of the early care of the breasts. This toilet should begin after the 28th week of pregnancy. Every time the woman has a bath she should carefully wash the nipples with soap and water, and gently draw them out between her thumb and first finger. After the bath she should dry them carefully, and apply some form of spirit such as eau de Cologne or whisky. If the nipples are well cared for before the baby arrives, they are not likely to crack and so be the cause of mastitis, and they will be sufficiently prominent for the infant lips to grasp.

Sexual intercourse should not be allowed during the last month of pregnancy.

We have very briefly discussed the hygiene of pregnancy. Now let us consider a few of the minor troubles that you will meet in your practice.

Indigestion, Heart Burn, or the Water Brash is a very common complaint especially after the 28th week. It is due partly to constipation and irregular meals, and partly to the size of the uterus. You must therefore inquire what the sufferer takes and give her medicine for her bowels. This may be sufficient treatment. If the indigestion persists advise her to take a teaspoonful of sodium bicarbonate in a half tumbler of warm water, half an hour after her meals.

Varicose Veins are often very troublesome. They may cause little or no trouble to the woman before she is pregnant, but the tumour in her abdomen by means of its weight may make them a very real burden. The legs feel tired, heavy, and tend to ache if she stands much. There is no cure for the condition. The legs should be rested on a chair as frequently, and for as long as possible. The chair should be sufficiently high to cause the feet to be on a higher level than the thighs. Crepe bandages are often a great comfort. They should be put on before the patient gets out of bed in the morning, and taken off at night. Always make it a practice to warn the woman what to do in case a vein bursts. She should take a clean handkerchief—or any clean piece of material and press firmly above and below the bleeding point until the doctor arrives. If the veins are very bad, always advise the patient to see a doctor.

Piles are a frequent source of pain and trouble to a woman during the last few weeks of her pregnancy and during the puerperium. They are varicose veins, caused by straining at stool and constipation. The pregnant uterus, by its weight and size, is an important factor in their causation. Prevent them by regulating the bowels. When they are present take some lanoline on your gloved finger, gently lubricate the piles, and carefully push them back. This will take you about a quarter of an hour to do properly. Never use any force, and try not to hurt your patient. The one

drawback to the use of enemas during the puerperium, or during the pregnancy, is that they do undoubtedly sometimes cause piles. If they are very bad let the patient see a doctor. An ointment consisting of gall and opium is a great favourite in the treatment of this condition. When they are very large and inflamed a fomentation gives great relief.

Pyelitis.—An inflammation of the pelvis of the kidney quite commonly occurs during pregnancy. The patient complains of a dull aching pain in one or other loin which may shoot down the outside of her thigh, and into her groin.

She may or may not have a raised temperature. The urine may contain a little albumin and always contains some pus. Occasionally a very large deposit of pus is noticed at the bottom of the specimen glass after the urine has stood for some hours. The urine is always acid in reaction. A mild degree of pyelitis is quite common and frequently overlooked. A patient with these symptoms should always consult a doctor.

Treatment.—She should be given a light, easily digested diet, and be encouraged to drink large amounts of Imperial drink. Large doses of potassium citrate should be given four times daily. The condition, if well developed, rarely clears up completely until the baby is born.

Now there is one great duty that the nurse must perform during the pregnancy. She must test the urine at frequent intervals. After the 28th week of pregnancy the urine should be tested once a fortnight. If there is any albumin in the urine, another specimen must be tested. If there is still albumin the nurse should take a catheter specimen with great care and again test for albumin. If there is any present she must at once refer the woman to a doctor. The reason that it may be necessary to take a catheter specimen is, that the discharge from the vagina may contaminate the urine which is passed naturally, and so cause it to give the reaction for albumin. If albumin is detected in the urine soon after it has first appeared, most of the severe cases of eclampsia and accidental hæmorrhage could be prevented by suitable treatment in an institution. There is no doubt that most patients who suffer from eclampsia have albumin

in their urine for many days before the severe symptoms occur. I know full well how difficult it is to obtain specimens of urine from some patients, but the many real difficulties can usually be overcome by tact and sympathy.

Examination during the Pregnancy.

Frequent physical examinations during the pregnancy are quite unnecessary and are undesirable. The abdomen should, however, be examined at least once before the confinement is expected. The time to select is when the patient is 36 weeks pregnant.

If the Patient is a Primipara.—The pelvis should be measured unless the head is definitely engaged. If the measurements are definitely small the case should be sent to a doctor, or to some ante-natal clinic.

If the nurse does not possess a pair of calipers, it is advisable for the patient to be sent where she can be measured.

If the patient is obviously stunted or rickety, or if she is manifestly deformed or suffering from any form of hip disease, it is essential that she should be seen by a doctor.

If the Patient is a Multipara and gives a history of previous normal labour, and everything appears normal there need be no anxiety. If, however, she gives a history of trouble at previous confinements, the case is abnormal and should be referred to a doctor. Beware of a pendulous belly with an oblique lie of the fœtus.

Points to Notice.—1. Is the woman well or ill? If the patient looks ill or feels ill she must be referred to a doctor.

2. Is there any bleeding or history of bleeding?

3. Is the head engaged?

If these questions can be satisfactorily answered the case is normal.

If (1) there is an offensive vaginal discharge; (2) there are any sores on the external genitals; the case must be notified to the local supervising authority.

If the fœtus is presenting by the breech, the patient should be sent to an ante-natal clinic so that an external version may be performed.

The nurse should listen for the fœtal heart before covering

the abdomen. If fœtal movements are obvious there is no need to listen for the heart beats. Very occasionally the fœtus dies for no obvious reason. More often the fœtus is alive even when no fœtal heart is heard.

In most cities and towns in these islands there are ante-natal clinics, attached to the general hospitals, where the patients can be examined free of charge. If the patient is in the country she should be referred to a doctor if necessary. The most important duty that the nurse has to perform is to test the urine for albumin at frequent intervals.

Cancer.

Midwives are often consulted by women about various troubles. Although the subject does not properly belong to midwifery, I want to warn you about cancer of the breast and cancer of the womb.

Cancer of the Breast.—If a woman discovers a lump in her breast she should immediately consult a doctor, or attend the out-patient department of a hospital. Cancer of the breast is never painful in its early stages, and when it is the cause of pain the condition is usually hopeless. A lump in the breast should always be examined by a surgeon as soon as it is discovered.

Cancer of the Womb.—Cancer of the womb is never painful in its early stages. The part most often affected is the cervix. The disease is more common in women who have borne children.

If a woman complains of irregular bleeding, especially at the time when she expects the change of life, she should consult a doctor, or attend the out-patient department of a hospital. Pain and a foul discharge mean that the disease is well advanced.

Cancer of these two organs is very common, and accounts for a high percentage of all the cases of cancer in women. If the condition is diagnosed early, an operation may prove successful in curing the condition. Alas, the greater number of women wait until the condition causes pain, and present themselves for operation when it is too late. Cancer is never painful in its early stages.

CHAPTER IV

CONSTIPATION

There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune.
Julius Cæsar, Act iv. Sc. 3.

This chapter I shall devote to the important subject of Constipation. You may feel surprised that I should occupy so much space discussing a subject which is classed by many as one of the minor ailments of pregnancy. It is not a minor ailment, it is a very powerful cause of trouble during pregnancy, and the commonest cause of morbidity during the puerperium. More than that, it is a trouble affecting a very large proportion of the men and women in Europe and all civilised countries.

It is only in the last few years that even the medical profession has awakened to the importance of this trouble. I will give you an example to prove my point. Sir George Humphrey, sometime Regius Professor of Surgery in Cambridge University, was a famous surgeon, a noted teacher and a man with a great personality. He did not like modern theories, and did not believe in the evils of constipation. One morning a young country lad came into his out-patients. "When did you go to the lavatory last, my boy," asked the surgeon. "Last Sunday, sir." "And when before that?" "Sunday week, sir." Turning to his students he said, "Look at this strong healthy country lad with his ruddy complexion, he only has his bowels opened once a week." His house-surgeon, however, leaned over to the lad and said, "And what do you do on the other days?" "Go behind the hedge, sir," was the answer.

I remember travelling on board ship with a successful lawyer, and he told me that when he was at his preparatory school he never had his bowels opened more often than once in five days. They all had the idea that it was a disgraceful act, to be put off as long as possible.

In the Dispensary at the Rotunda Hospital about two hundred patients are seen every week. Of that number about one hundred and fifty are cured by the Hospital "B.B.".[1] I do not want to take up more time in telling you that where there is constipation there is ill-health, and where there is ill-health it can usually be cured by attention to the bowels.

We could leave the subject here and simply finish the talk with a discussion on the best purgatives to use. What I want to try and tell you is ; what constipation is, why it is harmful, how it is caused, and how it can best be treated.

The alimentary canal is a long tube beginning with the mouth and finishing at the anus. Into this canal all the food goes. By means of various "juices" it is changed into a fluid condition, so that the body can the more easily take in what it wants, and allow the remainder to go out into the draught. Food which is eaten passes into the stomach. That which is suitable is taken into the blood-stream, while the remainder in about twenty-four hours passes out with the fæces. Now how does the food get pushed along from the stomach to the anus ? Well, the wall of the tube is always contracting, that is, making the inside of the tube smaller. The whole tube, however, does not contract at the same time. Every few minutes a wave of contraction starts at the top, and goes down the tube. The curious thing about this wave of contraction is this—that the portion of the tube just in front of where it contracts gets larger. Thus it is easy for the "food" when pressed by the contraction to go a bit farther on into the place where the tube is enlarged. These waves of contraction are called "peristaltic waves," and they go on all day and all night throughout the life of the individual. Now it is pretty clear that the more food there is to be pushed along the more frequent or the more powerful must be the waves. If the food is all easily taken

[1] A modified Mist Sennæ Co.

into the blood-stream there is nothing much left to go out with the fæces. That is one of the reasons why we take vegetables and brown bread, etc. Most of the cabbage that we eat simply passes through the canal out into the draught. It acts as a lump which stimulates good peristaltic waves. One of the reasons why uncivilized people do not suffer so much from constipation is because they eat more uncooked food-stuff which acts as a lump and passes out un-digested.

There is one more point to which I must refer. That is the difference between the last ten feet of the gut and that part which comes before it. It is called the large bowel or colon. It joins the small intestine at the bottom of the abdomen on the right side, near the appendix. The large bowel has one great object in life. That object is to absorb water. We have said that in the small bowel the food is fluid, or anyhow only semi-solid. We know that ordinary fæces are solid and shaped. After a purgative the motions are quite fluid. That means they have not stayed long enough in the large bowel for the water to be extracted, but have been hurried through. In very constipated patients the fæces are stiff and hard because they have stayed too long in the colon and too much water has been removed.

Let us just consider for a few minutes what happens to food in the alimentary canal. After being chewed it drops down a dark tube 18 inches long into the stomach. It remains here for two to three hours and then passes into the small intestine. In the stomach the digestive juice is acid, while in the small intestine it is alkaline and mixed with bile. The food then slowly passes along the canal of the small intestines, and most of the nourishment required for the body is absorbed from millions of little canals which run into the walls of the bowel. When the food reaches the large bowel, near to the appendix, it has to pass through a "door." This door is in communication with the stomach by means of nerves. When food enters the stomach the door opens, and food is allowed to pass into the large bowel. Water is absorbed in the large intestines, so that the food becomes more and more dry the farther it passes. After a night's rest, food entering the stomach opens the door leading into

the large bowel and sets up a desire to go to stool. This desire, or "call of the bowels" should occur soon after breakfast. If the bowels are emptied then all will be well. If the call is unheeded the opportunity will be lost. Constipation means irregularity, irregularity leads to constipation.

You will see that constipation is not merely a question of castor oil but is a condition in the causation of which there are four important factors.

1. *The food* is important. The more green food, fruit and vegetables that are taken, the more peristalsis there is, and the greater the probability of regular actions of the bowels. Uncooked foods, moreover, contain "vitamins" which are essential to the welfare of the body, and help to prevent constipation.

2. Perhaps the most important thing of all is *regularity*. If some one keeps crying "Wolf, Wolf," we get used to it and do not get excited. If somebody is always eating, then messages of sorts are always going down to that door entering into the large bowel. If, however, food is only taken at regular intervals, then, especially after a night's rest, the message is very strong. Most people receive the "call of the bowels" soon after breakfast. A large number of people are too busy or too lazy to take heed. The desire goes, and the bowels are forgotten. Children should be taught to go to stool soon after breakfast every morning. They should remain at stool for some minutes, even should there be no desire to empty the bowels. Further, under no circumstances should a child be allowed to take an interesting book to read while attending to this duty. You have the opportunity of spreading the doctrine of regularity to the mothers of the future generation, and in so doing you will save much ill-health, and not a little severe disease. If you fail, no one can take your place, and the people will be left in darkness.

3. *Exercise.*—It is quite clear that when we jump about we shake up our intestines, and so help peristalsis. On the other hand patients, although quite regular as a rule, have great trouble when confined in bed. Gymnastics and other forms of exercise are excellent treatment for constipation.

Abdominal massage has the same effect in people unable to take exercise.

4. *Fluid.*—The individual may not drink enough fluid. The large bowel then takes more than it should from its fluid contents, and the fæces are left hard and dry. This leads to constipation. It can be avoided by drinking a tumbler full of hot or cold water two or three times a day, at least half-an-hour before meals.

The pregnant woman is handicapped, for not only does the large pregnant uterus press on her intestines, but it makes it difficult for her to take exercise. If you can teach her regularity and can teach her to teach her children, then you will be doing a great service to the health of the community. I need hardly call your attention to the evils of this condition. When one looks at fæces one realises how much harm it must do to the body to keep all that evil-smelling stuff in it one hour longer than necessary. We have said that it is the indirect cause of all the minor ailments of pregnancy, and of a large part of the morbidity during the puerperium; what other evils does it cause to the pregnant woman? What, for instance, is its relation to eclampsia? Obviously it does not cause eclampsia, otherwise men and non-pregnant women would suffer from it. It seems to me that it is like a strike which paralyses a country, or a civil war. If such a country were attacked by an enemy it could not resist. In the same way a constipated woman cannot resist the toxaemias of pregnancy. The treatment is to remove the "civil" constipation and give her the chance of resisting the foreign or "toxaemic" enemy. That is why purgation and starvation are the treatment for all the ailments of pregnancy.

We might just mention that the painful and trying condition of piles is caused by the same condition. The treatment of piles is the treatment of constipation. They are caused by unsuccessful straining at stool.

In conclusion let us consider the medicines we can use. There are only six we need bother about. Liquid paraffin, "salts," aloes, cascara, senna and castor oil.

Liquid Paraffin.—This is the only drug that acts without irritating the inside of the bowel. It just lubricates the

intestines as oil lubricates a car. Why is it then not more generally used? Partly because it is rather expensive, and partly because it takes about a week to act and people have not the patience. There are several kinds on the market. Use a thick variety like Nujol. Give two tablespoonfuls morning and evening for the first week. Use half that dose twice a day the second week. From that on, one tablespoonful at night is usually sufficient. It is just as well for the patient to take cascara as well for the first week. There is one warning to give. Until the dose is regulated the paraffin may leak, that is to say, come away when the patient is not expecting it. It is as well for her to be prepared for this untoward event for the first fortnight. It is not likely to occur afterwards. This is the ideal drug to prescribe.

Salts.—It is sometimes taught that salts should not be given to a pregnant or lactating woman. People will tell you that they make the baby cross. This is sheer nonsense. A dose of any salts first thing in the morning, followed by a cup of hot tea, is excellent treatment for some people.

Senna, Cascara, Aloes.—Any of these drugs can be taken over a long period of time in any of the suitable forms. One of the best and cheapest of draughts is senna tea. Allow 15 pods to draw in a half-cup of cold water for twelve hours. Let the patient take the tea going to bed. If that number is not sufficient, more can be used, or the tea may be taken both morning and evening. The dose can be regulated to a nicety. If the pods are kept dry in a tin, and only cold water is used, there will be no griping. There are many excellent pills on the market containing these drugs.

Castor Oil.—Castor oil does not act as an oil but as an irritant. It tends to bind the patient next day. It should only be used on big occasions, when it is incomparably the best drug at your command. Those big occasions are just before labour and for the first few days of the puerperium. Give two ounces. We will discuss how to give it in Chapter VII.

Enema.—If the patient has been severely constipated it may be as well to start the course of treatment with an enema. It may be necessary in a few cases to give a daily enema for a short period of time.

Finally, when a patient says her bowels have been opened it does not mean that they have been well opened. A nurse should always see how much there is in the bed-pan and report accordingly. The colon, occupying the left side of the abdomen, should empty itself every day, so that there should be from 6 to 10 inches of fæces. That is one of the great disadvantages of some patterns of the modern "W.C." —they do not enable the patient to see how much has been passed. The pregnant woman should always take some purgative every day in spite of what she says. It is one great blessing that, however badly the bowels may have been treated, yet they soon respond to regularity and treatment. Let us see to it that the generations yet unborn may at least have the advantage of knowing what constipation is, and how it can be avoided. The only way for them to know is for their mothers to be taught. It is our responsibility. Let us then remember that constipation is the thief of health.

CHAPTER V

HANDS, GLOVES AND VAGINAL EXAMINATIONS

With fingers, long, small, white as milk.—*Pericles*, Act iv.

I WANT to spend some time considering the washing of hands and the wearing of gloves. It is absolutely impossible to make one's hands so clean that all the bacteria are removed. Fortunately for us and for our patients, the germs that live and grow on our skin are relatively harmless. We must, however, be careful that we never touch any infected material.

It is impossible to be too careful with your hands. The nails should never reach to the ends of the fingers. They should always be kept clean, and the quick of the nails should be kept well pressed back. Unless you make a habit of manicuring your nails *at a definite time on a definite day*, they will not always be in a clean and proper condition.

It is very convenient to carry an ordinary rubber sponge bag in which, amongst other things, a nail brush can be boiled. It is better to wash your hands under a running tap than in a basin of water that you are not able to change.

Gloves.

You should always carry a pair of smooth well-fitting, rubber gloves. Your hands can then be completely covered by something which you can make sterile. In your practice, gloves should be of greater service to you than to your patients. They protect your hands from discharges and sores which may be on the external genitals of your patient. If you never introduce your fingers into the vagina you cannot infect the patient, whereas she may be capable of infecting you, and giving you an unpleasant disease.

Gloves are usually sterilized by boiling. Put them in the sponge bag, and boil them for five minutes, and then empty them into a bowl of biniodide solution. Boiling, unfortunately, soon destroys a glove, and consequently midwives do not use them so much as they should.

Now gloves can be rendered sterile by washing them with soap and water, and immersing them in biniodide of mercury (1 in a 1000) solution for half a minute.

Before a delivery :

1. Thoroughly wash your hands.
2. Soak them for a while in biniodide of mercury, and dry them on a clean towel.
3. Put on your pair of dry rubber gloves, using a little powder.
4. Wash your gloved hands thoroughly with soap and water.
5. Soak your gloved hands, and rub them one against another in biniodide solution for one half minute.

You are now ready to conduct a delivery.

If your gloved hands accidentally touch the bedclothes, soak them in biniodide. In between the pains, while waiting for the head to be born, keep sousing the external genitals of the woman with biniodide, and soaking your own hands in the same solution. Once the well-fitting gloves are on, forget that you are wearing gloves, and consider that they form part of your hands.

Before removing your gloves :

1. Thoroughly wash them with soap and water, and use a scrub-brush to remove blood and vernix caseosa.
2. Soak them in biniodide of mercury for half a minute.
3. Dry them on a clean towel.
4. Powder them.
5. Take them off and put them in a suitable clean tin, so that they will be ready for use next time. A rubber tobacco pouch forms a convenient receptacle in which the gloves may be kept.

If you treat gloves very carefully they will last for a long time.

They must be :

1. Well-fitting.
2. Smooth.
3. Frequently tested to prove that they are not punctured.

You will soon get used to gloves and will be able to bath a baby quite easily while they are on your hands. It would be an advantage if you wore gloves doing the daily " wash-ups ". You should certainly wear them if the woman has anything in the nature of sores, or a discharge.

Let me again stress the fact that they protect you, as well as protecting your patients.

Vaginal Examinations.

I hope you will never make another vaginal examination after leaving the hospital, and I hope that in years to come vaginal examinations will not form part of the training of a midwife. They are completely unnecessary in normal labour. If the case is not normal it can be discovered to be abnormal by abdominal palpation.

1. Always wear gloves while making a vaginal examination.
2. Thoroughly cleanse the external genitals of the patient with soap and water.
3. Swab : (*a*) The labia majora,
   (*b*) In between the labia majora and the labia minora,
   (*c*) In the middle line,
   with biniodide solution.
4. Thoroughly soak your gloved hands in biniodide.
5. Open the vulva with the fingers of your left hand, and carefully introduce the first and second fingers of your right hand.

Always examine the patient in the left lateral position.

Notice.

1. Is the vagina dry or moist ? Is any blood present ?
2. Is the presenting part well into the brim ?
3. Is the cervix taken up ?
4. How much dilated is the external os ?

5. What is the presenting part ?
6. Can you feel any sutures ?
7. Can you feel a fontanelle ?
8. Can you feel a cord, if so is it pulsating ?
9. If a head is not presenting, what can you feel ?

You may learn what a fœtal head feels like by taking a baby on your knees, closing your eyes, and running your fingers along the sutures, and feeling the fontanelles.

Similarly you can learn to tell the difference between a hand and a foot.

Feel a baby's breech, especially the sacrum. A breech cannot be diagnosed with safety by vaginal examination unless the sacrum can be distinguished.

In the same way close your eyes and stick your fingers into a placenta. A placenta outside the body feels the same as a placenta inside the body, except that it is cold instead of being warm.

Again let me beseech you not to make a vaginal examination. It is not your duty to diagnose the abnormality, but merely to recognize that some abnormality is present.

Now you may say that it is all very well, but how can I know when it is safe for me to leave a case and pay a visit to another patient ?

In most cases it is possible to know how far on the patient is by abdominal examination, and by observing the character of the pains. If, in the case of a multipara the head can be felt by perineal palpation, that is by palpating between the anus and the coccyx, the os is almost certainly fully dilated, and it would obviously be unwise to leave the woman.

If the patient is a primipara things are not quite so simple. The head may be easily palpated through the perineum, although the os may not even be dilated to the extent of one finger. In such cases it may be advisable to make a rectal examination.

How to make a Rectal Examination.

1. Put on *both* your gloves.
2. Thoroughly soap the index finger of your right hand. Never use vaseline as it is difficult to remove from the glove.

3. Gently soap the anus, and introduce your finger. Pass it well behind.

You will soon learn to feel the thin external os, and be able to gauge how much it is dilated.

1. Remove your finger.
2. Thoroughly wash your hands in soap and water under a tap.
3. After the obvious dirt is removed use a scrub-brush and plenty more soap and water.
4. Soak your hands and rub them together in biniodide solution for one-half minute. Your gloves are now clean. Dry them and put them away in the manner described.

You will soon learn to be able to find out all that you want by rectal examination, and it is *absolutely* safe for the patient.

The Sisters in the Leeds Maternity Hospital made no vaginal examinations during 1925, but frequently made rectal examinations to estimate the dilatation of the external os. The Sisters in the Rotunda Hospital used to carry out the same routine, and probably do still. I have never seen a case where the slightest imaginable harm could be ascribed to such an examination.

It may at first sight seem to be a very startling thing to assume that gloves can be made sterile by a washing with soap and water, followed by a rubbing in antiseptic. At the present time about 700,000 confinements take place in England and Wales every year. Between four and five hundred thousand of these confinements are attended solely by midwives. I do not suppose that gloves are worn at 50,000 out of those 500,000 cases. The midwives are not able to prevent fæces from getting on their hands, and yet after a simple scrubbing they introduce their fingers into the vagina. It is obviously more easy to clean smooth rubber than the skin of the hand, and it has been proved without any shadow of doubt that it is possible to sterilize gloves in the manner described.

Antiseptics.

This word is used, not quite accurately, to describe certain chemicals which are used to destroy, or to prevent the growth of bacteria. A midwife should always carry two antiseptics :

1. A mercury solution.
2. Lysol, or one of the numerous similar preparations (such as cyllin, microbene, etc.).

Mercury salts are much better for the skin, and should be used for the hands and for the external genitals. The best solution is the biniodide of mercury, and should be used in the strength of one part in a thousand parts of water. It is convenient to carry the tablets. They are usually made up so that one tablet in a pint of water makes the requisite solution. The directions are always on the bottle.

Mercury solution, however, destroys instruments, such as scissors and forceps. Instruments, therefore, should be boiled and kept in lysol solution. Use a teaspoonful of lysol to a pint of water. A weak lysol solution should be used if the doctor gives a douche (1 teaspoonful to a quart of water).

CHAPTER VI

PRACTICE

Remember now and always that life is no idle dream, but a solemn reality based upon eternity, and encompassed by eternity. Find out your task; stand to it: "the night cometh when no man can work."—CARLYLE.

THERE are three main paths open to the woman who wishes to practise midwifery. She may elect to stay as a staff nurse in the maternity wards of a hospital, or she may prefer to go into private practice. There are two main types of private practice. In the one the nurse works for a doctor, and in the other she has her own practice and only calls in a doctor in an emergency.

I do not wish to say much about hospital practice, but there are one or two remarks that are applicable to all following the calling of a midwife.

1. Be thoroughly loyal to your staff. A nurse very often omits to report some little thing that is wrong with either the patient or her baby. She tries to correct the matter herself, and succeeds in nine cases out of ten. The tenth case is reported too late, and it may be very difficult to correct the trouble. A baby is frequently reported as being poorly when it is almost dying. If the doctor is told about the little troubles, he has the chance of preventing serious complications. I need not develop this theme, but I assure you that a little laziness, and a little carelessness are often sufficient to snap the delicate thread by which a new born baby is holding on to life.

2. Do not talk among yourselves in the hearing of a patient. The ordinary woman understands more than you

think. A woman often hears from nurses that her condition is hopeless. Be particularly careful of your conversation when a patient is being anæsthetized. Patients often hear remarks that are made when they are considered to be almost " under ".

3. A staff nurse in the labour ward has to shoulder great responsibilities. However much experience you may have had you are the nurse and not the doctor. Always report any abnormality at once. I know of one case in which the uterus was allowed to rupture and the patient die, solely because of the conceit of an inexperienced staff nurse.

Maternity Nurses.

The life of a midwife is very strenuous. If you attend confinements in private homes you may be treated as a domestic servant, or you may be treated as a friend in the house. In either case you are expected to work very hard. You may have to help in the domestic arrangements in the house, and wash out the baby's sundries. Your nights will be disturbed, you will get very little fresh air, and after a few weeks you will leave the case with very little in the way of thanks, only to travel to another confinement. Hard, indeed, is the lot of a maternity nurse who does not love her work.

Do not criticize the doctor or carry out treatment without his knowledge. You may have seen experts at work in the hospital, and you must not expect the same technique to be at the command of a doctor in general practice, who has to be a surgeon, a physician and an obstetrician.

I have been frequently told by doctors, that if they do not apply the forceps when they are summoned to a case, the midwife advises the people to send for another doctor. I certainly know that the maternity nurse who was looking after a patient I attended not so very long ago, did indeed tell the people that the treatment I suggested was wrong.

I have found too, that nurses occasionally give supplementary feeds, and carry out other treatment with regard to the baby, without even informing the doctor. Such behaviour is not playing the game, and no words are too

strong to condemn such utter disloyalty and disregard for the traditions of the profession.

By far the greatest number of confinements in the British Isles are attended by midwives practising by themselves. I do not wish to discuss the necessity for obeying the regulations of the Central Midwives' Board, for these matters are considered in separate chapters.

The midwife is often guilty of discussing cases in front of her patients and their friends. The tendency is natural, but strongly to be condemned. One of the last cases I admitted to the Leeds Maternity Hospital was one of hydrocephalus. The doctor told me that the nurse on the case was a nuisance, for she would insist on describing in detail to the friends in the room, in the hearing of the patient, the details of the only case of perforation she had witnessed. The nurse, like the doctor, should regard all that she sees or hears in her professional capacity as sacred. The secrecy of the sick-room should be as inviolate as that of the Confessional.

There are two obvious differences between the midwife and the maternity nurse, apart from those laid down by the Central Midwives' Board Rules.

1. The midwife has to obtain as many patients as she can reasonably deliver, and to obtain these patients she is forced to enter into competition with other midwives.
2. The midwife has frequently to work in very poor surroundings, and must learn to improvise.

All of us have to live. The midwife has to earn her livelihood at midwifery, and a hard earned livelihood it is. Do not, however, prostitute the noble profession to the level of pounds, shillings and pence. There is occasionally a tendency to an unholy alliance between the doctor and the midwife. I know of cases where doctors have complained that midwives would carry out treatment contrary to their wishes in cases to which they have been called. They dare not protest too much, otherwise the midwife will call in somebody else, and they will lose certain fees. I do not for one minute wish to insinuate that all the blame lies at the door of the midwife, the truth is very different. We are,

however, only discussing the matter from the point of view of the nurse.

There is, I fear, a danger of forgetting the patient, the one person whom we should primarily consider.

If you practise as a midwife you cannot have the conveniences that you have seen used in the hospital wards, and will have to exercise your ingenuity to a very great extent. If you have not got a mackintosh, you will have to use clean brown paper, or clean newspaper. If you have not got a towel you will have to use a petticoat. If you have not got hot-water bottles you will have to use hot bricks or hot flat irons. If you want to warm a patient and have no blankets, place several pieces of paper between sheets, and paper so used makes a fine warm quilt. If you have no bath to place under the bed, you will have to use a chamber. If you want to scoop blood from underneath a patient you can use the bottom of a soap dish, and a box makes an excellent table or chair.

However much you may have to improvise, there is no need for you to be without antiseptics, and a confinement in a district tenement ought to be as safe as in the best equipped maternity hospital.

The midwife should carry in her bag, which must have a lining which can be removed and washed :

1. A mackintosh.
2. A Higginson's syringe.
3. A cake of carbolic soap.
4. A nail brush.
5. A sponge bag.
6. A metal catheter.
7. A clinical thermometer.
8. A medicine measure.
9. Ligatures for cord.
10. A pair of scissors.
11. One pair of dissecting forceps.
12. Two pairs of artery forceps.
13. A drop bottle for the baby's eyes containing silver nitrate (1 per cent solution).
14. Biniodide tabloids.

15. Lysol.
16. Liquid extract of ergot.
17. A roll of cotton wool.
18. Gamgee tissue.
19. One pair of smooth well-fitting rubber gloves.
20. Temperature charts.
21. An apparatus for giving vaginal douches (required by the C.M.B.).

There are only a very few operations that should be performed in a private house. They are :

1. The clearing out of an abortion.
2. The application of forceps.
3. Version.

An anæsthetic will probably be required for these operations. The doctor usually induces the patient, and leaves the midwife to carry on with the anæsthetic. The anæsthetic usually used is chloroform. There are a few points that I should like to emphasise :

1. Chloroform should be given with care and prayer and plenty of air.
2. To ensure plenty of air, a high mask should be used.
3. The chloroform should not be allowed to come near an open flame.
4. If the patient stops breathing, or becomes blue, the mask should be removed.
5. Do not add any chloroform to the mask except on the orders of the doctor.
6. If the patient is blue, do not add any chloroform to the mask under any circumstances.
7. The chin should be kept well forward with a pillow, so that the patient has a good airway.
8. Do not allow the chloroform to get on to the patient's face, or into her eyes. It causes a nasty burn.

Chloroform is a safe anæsthetic to give to a pregnant woman, so long as she has a good airway and is of a good colour. It is a terribly dangerous anæsthetic to give to a blue patient.

Points to Remember when the Patient is being Induced.

1. See that all false teeth and hairpins are removed.
2. Cover the hair with a suitable cloth.
3. Do not engage in conversation with other people.
4. Reassure the patient.
5. Do not hold her hands in a firm grip or try to prevent her from moving. Nothing is more terrifying or irritating to a semi-unconscious patient than to be firmly gripped. Merely prevent her from harming herself or putting away the mask.

There are several devices for holding the patient's legs separated during an operation.

1. Some doctors carry a crutch. This consists of two parts.

(*a*) A bar which can be altered in size. It is fastened on either side, just above the patient's knee, by means of a leather collar.

(*b*) A strap which passes round the patient's neck and is fastened to the leather collars.

The thighs are thus kept flexed and separated.

2. A sheet suitably folded can be passed round the patient's knees and fastened behind her neck. The midwife can keep the knees separated.

3. If there are posts to the bed, a suitably folded sheet can be stretched between a post at the head and a post at the foot of the bed. The patient's knees may be made to hang over the sheet so fastened.

4. The patient can be brought to the edge of the bed, and her feet placed on two chairs, between which the doctor sits. The midwife steadies the knees.

If any of the above devices are used the patient should be in the cross-bed position, with her hips well over the edge of the bed.

Forceps are more often applied in the left lateral position. The nurse stands on the same side of the bed as the doctor and grasps the right thigh, near to the vulva, and so separates the legs sufficiently far for the blades to be applied. The buttocks should be well over the edge of the bed, and

the nurse should pull the thigh hard, in the direction opposite to that in which the doctor is pulling.

In all cases the midwife must watch the patient and attend to the anæsthetic.

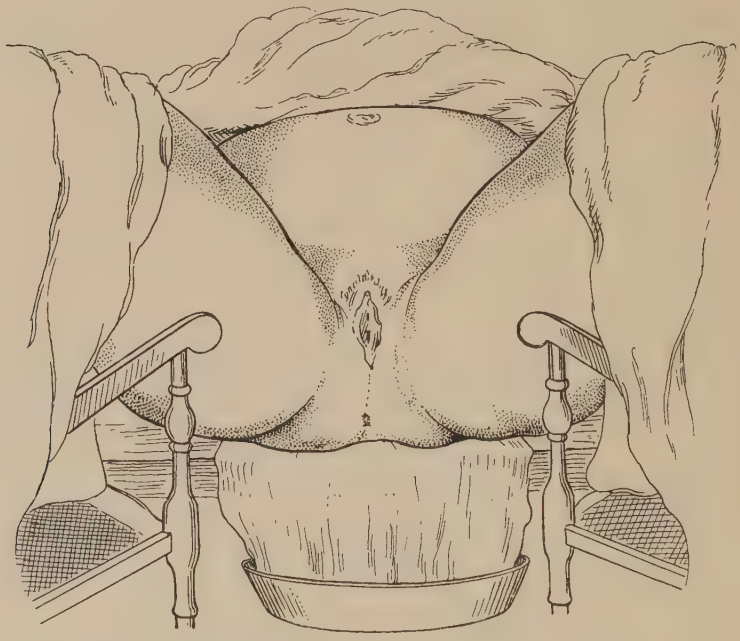


Fig. 7.—The cross-bed position. The patient is in the cross-bed position with her feet resting on two chairs.

Things required:

1. Plenty of hot and cold water.
2. Plenty of swabs in biniodide solution.
3. A douche.

By version is meant the changing of the lie of the child so that either the breech or the head may be made to lie over the internal os. The breech can thus be changed into a vertex presentation, or more rarely a vertex may be changed into a breech presentation.

There is not much more that we need discuss. Never leave the house until the baby has been born for at least an hour.

You must attend the house twice daily for the first ten days to wash up the mother and attend to the baby. Free purgation and " sitting up " are the surest safeguards of a normal puerperium. Examine the breasts every day, and be on the look out for cracked nipples. Show the mother how to feed her baby, and give her good advice.

There is one last piece of warning that I want to give you, and that is to expose your patient as little as possible. There must be a considerable amount of exposure. You are used

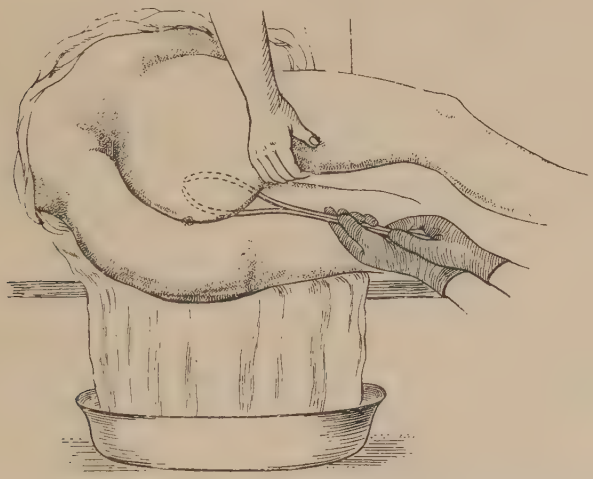


Fig. 8.—Supporting the right thigh. The patient is in the extreme left lateral position so that she is lying partly on her chest. The assistant grasps the right thigh near to the vulva and raises it so as to allow the operator to work.

to seeing the vulva and the vagina every day. The patient, however, is not used to lying half-naked every day. Always heap blankets on her chest so that she cannot realize how exposed she is. It is bad enough to be exposed, but it is ten times worse to realize it. I have been shocked at the carelessness of nurses. I have seen them casually talking to students while a woman has been sitting on a bed-pan in the same ward. There is one golden rule, and that is to do to others as you would that they should do to you. Every now and again examine yourself, and find out whether you are becoming

hardened, otherwise you may get used to doing things that once would have shocked you.

A highly educated, married lady, told me a little while ago that if she had her life to live again she would be a midwife, for she considered that such a calling enables a woman to render the greatest social service to the race. The mother of Socrates, the greatest of philosophers, was a midwife, and if I have said hard things in this chapter, it is because I entertain such a high regard for the most trying branch of the noblest profession in the world.

CHAPTER VII

ODDS AND ENDS

I should never have made my success in life if I had not bestowed upon the least thing I have ever undertaken the same attention and care that I have bestowed upon the greatest.—C. DICKENS.

IN this chapter I wish to give simple directions for carrying out various duties which a nurse may be called upon to perform.

How to Give Castor Oil

(*a*) *To an Adult.*

1. Stand the two ounces of oil in a bottle in front of the fire, or in hot water, until it is warm and will run easily.
2. Take a tumbler and squeeze into it the juice from half a lemon. Run the juice all up one side of the glass and over its edge, on to the outside of the tumbler.
3. Run the oil on the top of the lemon juice.
4. Squeeze the juice from the other half of the lemon on top of the oil.
5. Allow the patient to drink the oil, and see that her lips touch that part of the tumbler which is smeared on the inside and outside with lemon juice.

This is, in my opinion, by far the best way of giving oil. I know one patient who has taken two ounces of castor oil on nine separate occasions, and never tasted it once.

(*b*) *To a Baby.*

1. Warm the oil.
2. Place the baby flat on your lap.

3. Open the baby's mouth and pour a teaspoonful of the oil on to the back of its tongue.
4. Purse the lips together, until the oil is swallowed.

How to Give an Enema.

When I was a student I decided to give an enema to a patient on the district. I had never seen one given, but I just took the basin full of soapy water in which I had washed my hands, and squirted with a Higginson's syringe until I had almost finished my supply of soapy water. The patient assured me that the injection had caused her some pain.

1. A tube and funnel is better for giving an enema than a Higginson's syringe, but the latter is far more convenient.
2. Prepare 2 pints of soapy water. Soapy water can be made by stirring shavings of soap into the hot water. The prepared solution should feel comfortably warm to the finger.
3. Place the patient on her left side with a pillow under her left hip.
4. Squirt some of the solution through the syringe back into the jug, in order to warm up the rubber tubing and nozzle and to get rid of the air.
5. Smear the nozzle with soap. Do not use vaseline because it is more difficult to remove.
6. Gently insert the nozzle into the anus *by sight.* Be sure that there is some fluid in the syringe before introducing the nozzle. Sometimes the patient is nervous and it is difficult to introduce the nozzle. Talk to her, and ask her to bear down as if she were going to have an action of the bowels.
7. Gently inject a pint, never more than a pint and a half, of fluid into the rectum, pausing every now and again to save the patient inconvenience.
8. See that the patient is exposed as little as possible. Once the nozzle is injected there should be no exposure.

9. Ask the patient to hold the fluid as long as possible, and either leave her on a bed-pan, or leave a bed-pan within her easy reach.

An enema should not be given if the head is low in the pelvis.

There is a great art in giving an enema. The difference between an expert and a novice at the task can only be appreciated through experience.

If the enema is retained, or there is no satisfactory result, it should be repeated in two hours. A retained enema causes discomfort, and not infrequently a sick headache.

Bed-pans and Douche Pans should always be warmed with hot water and dried before they are placed underneath a patient. They should be thoroughly cleaned immediately after use, and washed with carbolic solution (one part in twenty) at least once every day.

A Turpentine Enema.

After any form of operation, and whenever the patient complains of colicky pains during the puerperium which are not relieved by a soap and water enema, a turpentine enema may be ordered.

To give such an enema always use a tube and funnel.

1. Place the patient on her left side. The pillow under the left hip is very important.
2. Mix one ounce of turpentine with three ounces of warmed olive oil and pour some of this fluid into the funnel and tube. Raise and lower the funnel, keeping the end of the rubber tube at the same level, until all the air has escaped from the tubing, through the funnel.
3. Pinch the tube an inch or so from its end, and introduce the end into the anus. Pass the tube three or four inches up the rectum. Keep the funnel at such a level that the fluid runs in slowly.
4. Give a soap and water enema in four hours' time.

A Nutrient Enema.

In cases of hyperemesis gravidarum it may be necessary to give what are termed nutrient enemata. Glucose is

the only nourishment that is absorbed by the large bowel. Give:

Glucose	one dessertspoonful.
Sodium bicarbonate	one half a teaspoonful.
Normal saline solution	half a pint.

Normal saline solution is made by mixing a teaspoonful of ordinary salt in a pint of water.

Give the nutrient enema with a tube and funnel, taking great care to run it in slowly. Never give more than eight ounces at a time. These enemata are given four-hourly, and if more than eight ounces of fluid are introduced on each occasion, the bowel will become intolerant and return all the fluid. If the bowel does become intolerant, withhold all enemata for at least eight hours. It is exceedingly bad practice to leave a woman lying in a pool of saline, and it so often happens.

Salines.

After any serious operation, or after a severe hæmorrhage, a half pint of normal saline should be given per rectum four-hourly until the patient improves. The tube should be gently inserted while the patient is lying on her back. Uncover her as little as possible, as warmth is if anything more important for her than fluid.

If the patient is very shocked there is no finer treatment than a coffee enema. Add six tablespoonfuls of coffee to half a pint of cold water which should then be boiled in a saucepan. Strain the coffee through muslin or a stocking. Add two tablespoonfuls of brandy or whisky and a half teaspoonful of common salt. Give the coffee through the tube and funnel. In emergencies salines and coffee enemata can be given perfectly well with a Higginson's syringe. Give the injections very slowly, and be sure that the coffee is well strained, or the syringe will become blocked.

To Pass a Catheter.

1. Let the patient be on her back with her knees well separated. Cover the thighs and legs with the sheet, and see that the abdomen and chest are well covered.

2. Prepare your hands and wash up the patient as for a vaginal examination.
3. Place a suitable receptacle on the bed.
4. Always use a well-boiled metal catheter.
5. Grasp the catheter by its distal end and do not touch the part which is to be inserted into the bladder.

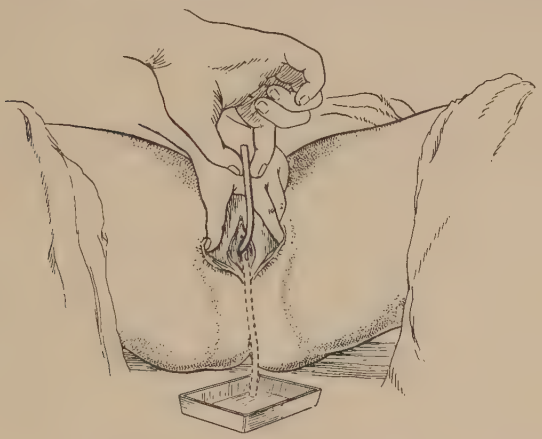


Fig. 9.—Passing a catheter. The patient is lying on her back in bed, with her thighs separated. Bed-clothes are heaped on her abdomen and her thighs are covered with sheets. The vulva is separated with the thumb and forefinger of the left hand. The metal catheter is grasped at its distal end, and should be dipped in biniodide solution immediately before it is inserted. It will be seen that the end of the catheter is lying almost over the pubes, while the proximal end is inserted into the urethra. The dotted lines show the position of the catheter after it is inserted. No force should ever be used, but the catheter should be allowed to fall into position by its own weight. The patient should be covered in the same manner when she is being "washed up".

6. Separate the lesser labia and see where the opening of the urethra is.
7. Dip the catheter into biniodide and introduce it into the urethra.

Your hand should be almost directly above the pubes when the catheter is introduced.

As the catheter goes into the bladder the handle should drop towards the bed.

Never use any force, but let the catheter slip in by its

own weight. Alter the direction if it does not pass easily. The catheter should always be passed with great antiseptic precautions, and only when it is necessary.

Shaving.

The hair covering the external genitals should always be shaved before any obstetrical operation, and it is advisable that the parts should be shaved before a normal delivery.

Patients often complain that they experience great inconvenience during this operation.

1. The patient should lie on her back with her thighs separated, and be exposed as little as possible.
2. The hair should be clipped short with scissors.
3. Lather the parts gently but thoroughly with soap and warm water.
4. Use a safety razor, and do not forget to change the blade frequently.
5. After the pubic hairs are shaved, the patient should be turned on her left side so that the hair round the anus can be shaved.
6. Dry the parts gently.

While shaving any area keep the skin on the stretch with the fingers of the left hand.

A Hypodermic Injection.

Excellent glass jars can be obtained in which the hypodermic syringe and needle can be carried in spirit. The syringe is then always ready for use.

To sterilize a syringe and needle:

1. Wrap the barrel, piston and needle in separate pieces of cloth or cotton wool.
2. Place the wrapped up syringe in a small vessel containing *cold* water.
3. Boil the water in the vessel, or introduce the vessel containing the syringe into a steriliser or saucepan. The syringe should be left in boiling water for three minutes.
4. When fitting the needle to the barrel do not touch the part of the needle that is to be inserted in the skin.

To dissolve a Tablet.—The tablet may be put into the barrel of the syringe, into which a little boiled water can be drawn. Place a clean finger over the opening of the barrel and shake until the tablet is dissolved.

An excellent alternative method is to place the tablet with a little sterile water into a teaspoon, which has been boiled. Dissolve the tablet, using the end of the barrel to help you. Draw up the solution into the barrel and put on the needle. Use as little water as possible to dissolve the tablet.

Hold the barrel with the needle pointing upwards.

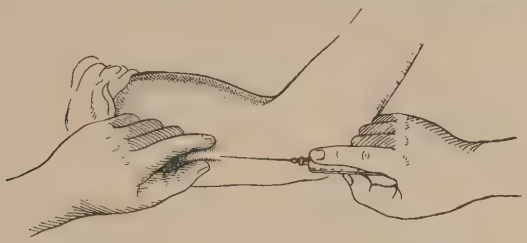


Fig. 10.—Giving a hypodermic injection.

Gently turn round the piston until all air is expelled and a drop of fluid appears at the end of the needle.

Pituitrin is put up in "ampoules." Break off the end of the glass filament with a pair of scissors. Place the needle into the ampoule and hold the syringe with the needle pointing upwards and the ampoule on the needle upside down. Draw the fluid into the barrel.

To give a hypodermic injection:

1. Paint the selected area of the patient's skin with spirit or tincture of iodine, using a swab of cotton wool. The area to select is high up on the fleshy part of the outside of the arm, near the shoulder.
2. Pinch up a good lump of flesh with the fingers and thumb of the left hand.
3. Grasp the syringe firmly in the right hand. The extended index finger should lie along the barrel and reach on to the base of the needle. In this manner the direction of the plunge can be controlled.

4. Give a good plunge with the needle which should be passed well into the arm. As soon as the needle is inserted, remove the left hand from the arm, and inject the fluid.
5. Withdraw the needle. There is no need for a lot of rubbing with the swab.

Always use a sharp needle and go deep into the flesh. An injection is much more painful if given immediately under the skin.

If the patient is uncovered for the delivery, the injection of pituitrin may be given deep into the buttock.

To boil Swabs.—Make a large number of good-sized swabs from a roll of cotton wool. Wrap them up in a suitable piece of cloth, such as a hand towel. Place the towel inside a saucepan of water and boil the swabs for twenty minutes. Take out the cloth and empty the swabs into a basin containing a little concentrated biniodide solution. The water with the swabs will further dilute the solution. Do be generous, it is surprising how few swabs are sometimes prepared for a confinement. Boil six times as many as you think you will require.

The Nipple Shield should be boiled immediately before it is used. After it is used it should be thoroughly washed and kept in boracic solution. The nipple should be washed before the shield is applied. See that the hole in the teat is sufficiently large.

The Breast Pump.—The breast pump should be boiled before and after it is used. It should be thoroughly dried and kept in a clean convenient place when not in use. The nipple and surrounding area of breast should be thoroughly washed with boracic solution before the pump is used.

Squeeze the bulb and apply the pump. Milk will be sucked out into the little glass receptacle. By repeatedly squeezing the bulb the breast can be exhausted. Pour the milk into a sterile vessel and give it to the baby from a bottle. Pump the breast yourself on more than one occasion so that the mother can learn how to do it herself.

How to take the Temperature and Pulse

1. Shake down the thermometer.
2. Place the bulb of the thermometer in the arm-pit, and be sure that the bulb is in contact with skin on all sides.
3. Leave the thermometer in position for twice the time stated on the glass. Contrary to the opinion held by some nurses, the thermometer does not register too high a reading if it is left too long in the axilla.

It seems quite simple to take a temperature, but surprising mistakes are made.

The Pulse Rate.—Always count the pulse for a whole minute. Do not take the pulse rate immediately on entering the room. I remember a patient whom the student assured me, on three consecutive days, had a pulse rate of 140. I went out to see her. She did have a pulse rate of 140 when I first entered the room, but it had dropped to 80 after a five minutes' conversation.

Sometimes the pulse cannot be felt in the right hand, although it is easily felt at the left wrist. Beware of this pitfall. The pulse can occasionally be more easily felt on the little finger-side of the wrist.

Fomentations

Take a piece of lint double the size required and wrap it in a towel. Place the middle of the towel for a minute or so in boiling water. Take the towel and wring it out, but do not squeeze all the water out of the lint. It is the warm moisture which does the good. A dry fomentation is of absolutely no service.

The fomentation should be generous in size and covered by a larger-sized piece of jaconet and a thick layer of cotton-wool. It should not be applied while it is very hot.

Hot-water Bottles.—Rubber hot-water bottles are the most suitable to use. An unconscious patient or a baby is easily burnt. This unpleasant accident occurs from time to time in all hospitals.

The hot-water bottle must be wrapped up in flannel, and separated from the patient by at least one blanket.

To fill a Rubber Bottle.—Bend the bottle and hold it so that the bottom of the bag is almost on the same level as the opening into which the water is poured. This allows the air to escape and prevents the water from gurgling out and burning your hands.

1. Use hot but not boiling water.
2. Do not fill the bottle too full.
3. Screw the cap on tightly, and be sure that the water cannot leak from the bottle.
4. Dry the neck of the bottle.

A funnel is of great use in filling a jar. Hot bricks or flat irons may be used in an emergency. Sand heated in a tin may be used, if you can get the sand.

Twilight Sleep.—A patient is given injections of scopolamine and her eyes are bandaged and her ears plugged. The duties of a nurse are :

1. To control, but not to prevent movements, which may be rather violent.
2. To prevent the patient's hands from straying in the region of her genitals.
3. To take her pulse from time to time, and to notice any increase in its rate.
4. To watch the patient, and obey the orders of the doctor in the letter and in the spirit.
5. The nurse should not hold conversation with the patient either during, or immediately after, the labour.
6. The room should be dimmed, but not dark.

Circumcision.—Circumcision is often performed in a private house. The nurse should boil such instruments as the doctor requires.

The child's penis is brought out through a hole in an ordinary sterile swab, and the nurse holds the legs firmly over the edge of the table.

The nurse should examine the baby from time to time after the operation to see that there is no bleeding from the wound.

Unless the doctor gives any special order the wound requires no treatment, and the baby can be bathed as usual.

Cæsarean Section is a surgical operation which should only be performed in an institution. An incision is made through the mother's abdomen and uterus, through which the child is delivered.

STRENGTHS OF VARIOUS SOLUTIONS

Biniodide of mercury	1 in 1000.
Lysol	A teaspoonful to a pint of water.
Lysol for a douche	½ teaspoonful to a pint of water.
Saline solution	A teaspoonful of salt in a pint of water.
Sodium bicarbonate solution	A teaspoonful of sodium bicarbonate in a pint of water.
Glucose enema	One dessert-spoonful of glucose in a half pint of saline.

TEMPERATURE

1. Intra-uterine douche	Temp. 115° F. The outside of the can should feel comfortably hot to the bare elbow.
2. Of Intra-various saline	Temp. 115°-120°. Depending on the length of rubber tubing.
3. Baby's bath	100° F.

CHAPTER VIII

APHORISMS

FREQUENT washings damage well-stitched perineums.

* * *

Never assume that a baby is dead until you have proved that it is not alive.

* * *

There is no harm in resuscitating a dead baby.

* * *

A baby cannot suck if its nose is flat against the breast.

* * *

A baby cannot kick in the womb if its heart is not beating.

* * *

The heart is desperately deceitful, even in the uterus.

* * *

A mother's milk never disagrees with her own baby. It may not be sufficient.

* * *

There are three, nay four, causes of sore buttocks—a wet napkin, a napkin washed in soda, green stools, and a careless nurse.

* * *

Spirit in time saves mastitis.

* * *

Fomentations and a tight binder prevent a breast abscess.

* * *

Two drops of silver nitrate solution may prevent a life of blindness.

* * *

The bath bun and the glass of milk between meals may cause eclampsia.

Standing is the commonest cause of swollen ankles.

* * *

A good maternity nurse is known by the amount of hot and cold water and swabs she prepares.

* * *

A bad maternity nurse is known by the number of difficult cases she insists on describing to the patient and her relatives.

* * *

Silence is golden, and professional reticence and tact are of great price.

* * *

A healthy premature baby should not die. Warmth, fluid, absolute quiet and a patient, self-sacrificing nurse are of more value than all the physicians and drugs in the world.

* * *

Miss one feed and the baby's digestion is upset.

* * *

If the mother does not rule the baby, then the baby will rule the household.

* * *

A good nurse leaves a clean baby at the end of three weeks.

* * *

A full bladder or a full rectum upsets normal labour.

* * *

Constipation is the thief of health, and the ally of sepsis.

* * *

Sitting up during the puerperium may prevent lying down in a coffin.

* * *

Do not do for nature what nature can do for herself.

* * *

The fundus is very shy, do not try to handle it.

* * *

Sleep is God's greatest gift, and is essential during a long labour.

* * *

Post-partum hæmorrhage should never occur. It is never worth putting on the pictures.

An engaged head is the only guarantee of a normal labour.

* * *

Any bleeding during pregnancy is a red warning of danger.

* * *

A woman with a placenta prævia is in imminent peril of her life until she is treated.

* * *

A well baby never cries without provocation.

* * *

Beware of a baby that never cries.

* * *

The cry, the scales and the napkin are the three criteria by which a baby should be judged.

* * *

A pendulous belly is like a Ford car, not much to look at, but may cause a lot of trouble in starting.

* * *

Nature is responsible for some abnormal labours, but more are caused by meddlesome attendants and garrulous relations.

CHAPTER IX

NORMAL LABOUR

I will greatly multiply thy sorrow and thy conception; in sorrow thou shalt bring forth children.—GENESIS iii. 16.

General Considerations

THE normal duration of pregnancy is supposed to be ten lunar months. Nobody knows why labour starts. Perhaps the ancients were right and it is the fault of the moon. The object of labour is to expel the baby out of the uterus into the world. This task is accomplished by a definite number of "pains", which of course varies with each patient. The average number is somewhere about 100 pains.

What is a "pain"? Well, it is not essentially painful. Some women have their babies without being conscious of any pain. They do not even realize that they are in labour, and so may give birth to their infant while out for a walk, watching a procession, stepping on a tram-car, or in the lavatory. A "pain", however, is usually painful. It consists essentially of two parts: (1) Contraction, (2) Retraction. If you lay a warm hand on the abdomen of a woman pregnant more than three months, you will feel definite contractions of the uterus, which occur at intervals of about twenty minutes. Contractions will never cause a baby to be born. What then is retraction? A classical simile was given years ago. I will but slightly change it. The professional bird's-egg collectors in Yorkshire, and elsewhere, lower boys over the cliff to collect the eggs which are so frequently laid in inaccessible places on the face of the cliff. Now imagine yourself pulling up the boy after he had got the eggs. You

pull him up a certain distance and then get tired. If you let go he will fall to the bottom again. What do you do ? Why, you wind the rope round a stake and rest. Then you pull him up a bit further and rest again, and in a definite number of pulls you get him to the top. So it is with the uterus. It has got to get the baby out, instead of the boy up. Every time the uterus contracts it gets smaller. It then " retracts " and remains permanently smaller, just as the rope remains shorter when wound round the stake. This, then, is the secret of the mechanism of labour. The uterus keeps getting smaller. The baby does not get smaller. If your dress shrinks in the laundry, what do you do ? You can either " let it out ", or get out of it yourself and give it to somebody else. What can the baby do ? Nothing but get out.

Now for a moment I want you to consider the uterus as a house. Think of the cervix as a spare bed-room. The baby finds his quarters getting cramped, and so he opens up his spare room. This plan works for a while. The uterus, however, retracts relentlessly on. The babe has no option but is forced into the vagina and out into the world.

The Liquor Amnii

As you know the baby floats in about two or three pints of liquor amnii enclosed in a double layer of membranes. When the uterus contracts this bag of fluid is compressed, but so long as the membranes are intact the child is not squeezed by the uterus, but merely pressed by the liquor amnii. The head should be engaged in the pelvic brim when labour commences. The fluid, however, can pass all round the presenting part. During a pain the liquor amnii, which is pressed past the head bulges, and this bulging dilates the cervix. This little sac of fluid below the head is called the " fore-waters " and is protected from the full force of the uterine contractions by the presenting part, which is pushed down by the pain and acts as a valve.

If for any reason the presenting part does not fit the pelvic brim, then it is clear that it cannot act as an efficient valve, and the full force of the uterine contractions will

cause the membranes to rupture. You would therefore expect early rupture of the membranes in such conditions as :

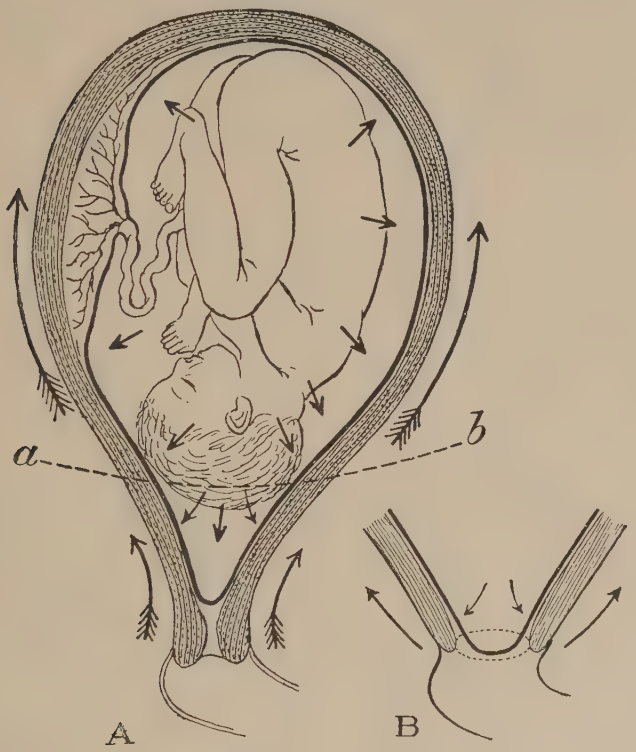


Fig. 11.—Diagram to show the effect of the uterine contractions on the bag of waters.

The large arrows show the effect of the contraction of the longitudinal muscles of the uterus and the small arrows show the effect of the intra-uterine pressure on the bag of waters, gradually opening up the os. (Fairbairn's *Gynæcology with Obstetrics.*)

1. Contracted pelvis.
2. Oblique lie of the child.
3. Breech presentation.
4. Hydrocephalus.
5. Hydramnios.
6. Small child or twin pregnancy.

Early Rupture of the Membranes

A woman when she is almost due to be confined often comes to hospital complaining that her "waters have broken". She is admitted and observed. In nine cases out of ten, it becomes evident that the membranes are still intact. The story can only be explained by assuming that a sudden escape of urine caused the woman to think that her membranes had ruptured.

An involuntary escape of urine is by far the commonest explanation of "broken waters" before the onset of labour.

Occasionally the membranes leak. A small hole occurs somehow and somewhere in the membranes, and liquor amnii undoubtedly escapes. This little hole often gets sealed up, and labour may not commence for some weeks.

Hydrorrhœa Gravidarum

Very rarely an escape of a considerable amount of fluid from the vagina may occur for some weeks before the birth of the child. This fluid may be indistinguishable from liquor amnii, but is usually blood-stained and stiffens the linen. The condition is called *hydrorrhœa gravidarum*.

The woman will usually go into labour within four days after the definite rupture of the membranes. I know of only one case in which the delay was as long as six days. The liquor amnii will escape in little gushes during the whole time. If too much of the fluid escapes before labour commences, the child will be born dead.

It is then important for the nurse to see that her patient is not left for an indefinite period of time after the membranes have ruptured, before the onset of true labour. How can you be sure that the membranes have ruptured? It is sometimes very difficult. Put the patient to bed and observe the draw-sheet.

Urine usually stains the sheet a yellowish colour, the centre of the patch being of a deeper colour than the margin.

Liquor amnii usually stains the sheet a very faint bluish-white colour, and does not stiffen the linen.

Smell the patch and see whether you can distinguish the typical smell of urine. Occasionally it may be necessary to pass a catheter and so make certain that the bladder is empty. It is only in very rare cases that you will not be able to make up your mind as to whether the membranes have or have not ruptured. A vaginal examination should never be made, for apart from all other considerations, it will more often than not fail to give you any helpful information.

Dry Labour

If for any reason the membranes rupture before or early in labour, it is called a case of dry labour. The cervix will then have to be dilated by the presenting part itself and not by the fluid bag of "fore-waters." It is usually considered that a dry labour is very tedious, and a great disadvantage to the mother and child.

Undoubtedly this is true in many cases, especially of primiparæ. The nurse should therefore always keep a patient in bed during the whole of her labour, if there is any reason to suppose that the membranes are likely to rupture early. Moreover she should never artificially rupture the membranes except when they protrude at the vulva, and then only when the presenting part is fixed. On the other hand I have for a long time been convinced that the early rupture of the membranes does, in the majority of cases, shorten the labour, whether the patient be a primipara or a multipara. I recently had the opportunity of discussing the subject with a number of midwives, who had been practising for many years, and they all held the same opinion.

Tough Membranes

Occasionally the membranes are tougher than usual, and protrude unruptured at the vulva long after the full dilatation of the cervix. If the case of labour is normal take a stilette, or a pair of forceps, and after boiling the instrument, puncture the membranes during a pain. Very often there is a definite cessation of the pains immediately after the rupture of the membranes. After about ten minutes the pains recommence and the child is soon born.

Caul

If the child is born before the membranes are ruptured its head will be enveloped in membranes, which in such circumstances are called a caul. Children born with a caul were supposed to be lucky. The caul itself was dried and carried by sailors as a protection against disaster at sea. Midwives, up to fifty years ago, sold such charms for as much as £5, but the custom has died out and even the birth of David Copperfield was unprofitable. The disadvantage of allowing the child to be born with the caul lies in the fact that the pull on the membranes which are attached to the placenta might cause its partial separation. Although I have seen and known of a number of such cases, I do not know of a case where any such disadvantage was evident.

Liquor Amnii

Liquor amnii is usually a clear colourless fluid and has no odour. If meconium has been passed before the birth of the child, the fluid is coloured a brownish-green, contains flakes of meconium and has a characteristic odour. Occasionally the liquor is much thicker in consistence than usual and has a pearly lustre.

If the fœtus is macerated the fluid is dark in colour and has a warm offensive smell.

Very, very rarely the liquor amnii is of a dark blackish-green colour, of normal consistence and has an appalling odour. I remember two cases in particular. One was a case of Caesarean section. When the uterus was opened the smell was so overpoweringly offensive that the operator dropped the baby on to the stone floor of the theatre, as he did not think it possible for the child to be alive in such a uterus! It was seen to move and was ultimately resuscitated and went home well.

The other patient was sent in from a country place and was reported to have been in labour for several days. It is no exaggeration to say that it made everybody feel sick even to go into the ward where she was lying. She was delivered of twins, both of which were alive. Both patients had a normal puerperium.

CHAPTER X

THE MECHANISM OF LABOUR

He acknowledges nothing besides matter and motion; so that all must be performed either by mechanism or accident.—BENTLEY.

We have seen that by contracting and retracting the uterus gets smaller, and that the child is expelled by a definite number of pains, which of course varies with each woman. We have also seen that the dilatation of the cervix is effected as a rule by the liquor amnii.

After giving a few definitions I want to discuss the mechanism of normal labour.

OBLIQUE OF THE PELVIS.—Owing to the fact that the promontory of the sacrum bulges into the inlet of the pelvis, the child's head obtains more room by lying obliquely in the brim. The line drawn from the joint between the sacrum and the ilium on the right side, to the ilio-pectineal eminence on the left side, is called the right oblique. The left oblique is the corresponding line commencing at the left sacro-iliac joint.

LIE OF THE CHILD.—By the lie of the child is meant the relation of the long axis of the child to the long axis of the mother. In simple language it is the relation of the back bone of the child to that of its mother. The lie of the child ought to be *longitudinal.*

POSITION OF THE CHILD.—By the position of the child is meant the position of the child's head in relation to the mother's pelvis. Thus, when we say the case is an L.O.A. we mean that the head is over, or engaged in the pelvic brim, that the occiput is anterior or to the front, and lies to the left side of the mother. There are thus four positions :

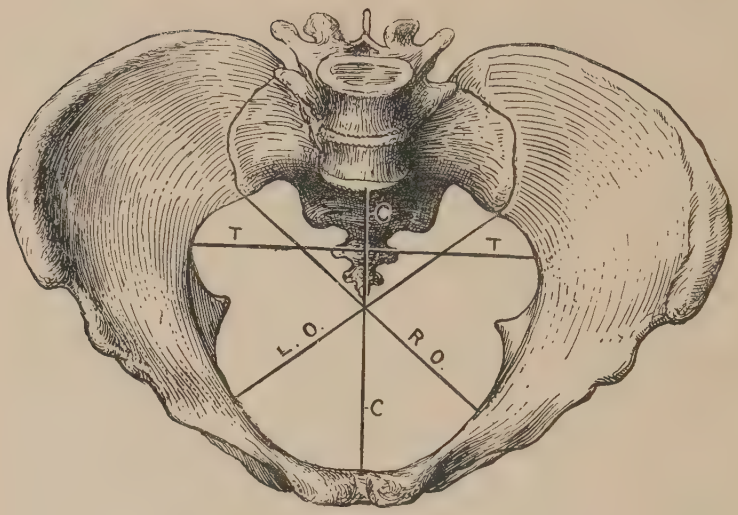


FIG. 12.—The pelvic inlet. T, transverse diameter; L. O. and R. O., right and left oblique diameters; C, true conjugate diameter. (From Tweedy and Wrench's *Practical Obstetrics*.)

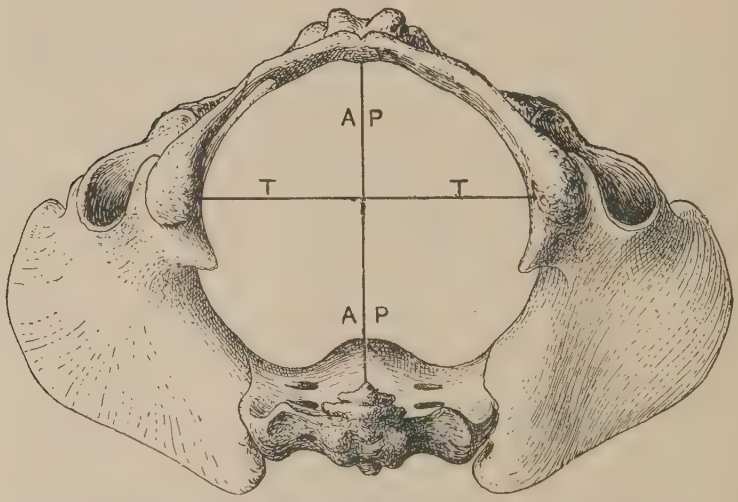


FIG. 13.—The pelvic outlet. T, transverse diameter; AP, antero-posterior diameter. (From Tweedy and Wrench's *Practical Obstetrics*.)

L.O.A. or V1. The occiput to the mother's left side and in front.

R.O.A. or V2. The occiput to the mother's right side and in front.

R.O.P. or V3. The occiput to the mother's right side and behind.

L.O.P. or V4. The occiput to the mother's left side and behind, where V stands for vertex.

Attitude.—By the attitude of the child is meant the relation of the limbs of the child to its own body. The attitude should be one of incomplete flexion.

Presenting Part.—By the presenting part is meant that part of the fœtus which lies over the pelvic brim. The presenting part should be the head. If either the head or the breech presents, it is called a polar presentation. If the presentation is polar, the lie must be longitudinal.

When referring to the mother :

Upwards always means towards her face,
Downwards always means towards her feet,
Backwards always means towards her back,
Forwards always means towards her front,

no matter in what position her body may be placed. Thus when the woman is in the knee-elbow position—to push " Forwards " would mean to push towards the floor.

Similarly the right side is the side of her right hand, whatever the position of the patient.

The opening by which the child is to escape into the world is downstairs, the child must therefore descend to make his exit. The first movement then is one of descent. If the child were to be born through the diaphragm the first movement would be one of ascent.

The head is freely movable on the neck. It can either flex or extend. Why does the head as a rule descend with increasing flexion? The normal attitude of the head is one of partial flexion, so it is presumably more likely to flex than extend. There is, however, a more important reason why the head tends to descend with increasing flexion. It is not many years since some of you played at see-saw. You will

remember that the one on the side with the more "plum-pudding" went down. If you place a baby on his side and draw a straight line along the middle of his neck, and project it over the side of his head, you will find that there is more plum-pudding on the face side of the head. The forehead then offers a greater resistance to the pelvic tissues than does the occiput. If I may change the simile—think of a large crowd watching a procession. A small errand boy could worm his way through the people and get right into the front line. A fat, bronchitic gentleman would be left panting, on the outside of the crowd! The occiput is like the errand boy and can pass more easily through the pelvis than can the forehead. This means that the head becomes more and more flexed as it descends towards the pelvic outlet.

Descent with increasing flexion is then the first movement.

As the head descends it meets the resistance of the pelvic floor. This floor slopes towards the front. There is a rule, that the portion of the presenting part which first meets the resistance of the pelvic floor, rotates to the front. In a normal vertex presentation the occiput first meets this wall of fascia and muscle and rotates to the front. This is called internal rotation. The rotation is through 45° or one-eighth of a circle. The sagittal suture starts in one or other oblique, and after rotation lies in the antero-posterior diameter of the outlet of the pelvis.

The second movement is one of *Internal rotation through one-eighth of a circle.*

The occiput then gets below the pelvic arch and the head is born by extension, the occiput, forehead and face escaping over the perineum. It cannot be born by flexion, as the head is already fully flexed.

The third movement then is *Birth of the head, by extension.*

As soon as the head is born the child realizes that it has a kink in its neck. This kink of one-eighth of a circle it undoes. This is called restitution. In an L.O.A. the occiput rotates to the mother's left side, while in an R.O.A. the movement is in the opposite direction. Restitution undoes internal rotation. The fourth movement is *Restitution through one-eighth of a circle.*

When the head underwent internal rotation the shoulders

remained in the same position. In an L.O.A. the back remains to the mother's left side and in front. When the head is being born the shoulders enter the pelvic brim in the oblique *opposite* to that in which the sagittal suture entered. As the shoulders descend the anterior shoulder first meets the resistance of the pelvic floor and rotates to the front. The shoulders then come to lie in the antero-posterior diameter of the pelvis. When the shoulder undergoes internal rotation the head is perfectly free to move, and rotates with the shoulders through one-eighth of a circle. This is known as external rotation and the movement is in the same direction as restitution. The fifth movement then is *External Rotation through one-eighth of a circle.*

The buttocks usually rotate with the shoulders and pass through the pelvis in its antero-posterior diameter.

The movements then are :

1. Descent of the head, with increasing flexion.
2. Internal rotation (one-eighth of a circle).
3. Birth of head by extension.
4. Restitution (one-eighth of a circle, in the direction opposite to internal rotation).
5. External rotation (one-eighth of a circle, in the same direction as restitution).
6. Birth of breech.

Occipito-Posterior Presentation

1. Reduced Occipito-Posterior Presentation

In an L.O.P. or an R.O.P. presentation the occiput lies towards the mother's back, and the limbs can be easily palpated in the mid-line of the abdomen.

In the vast majority of cases the head descends with increasing flexion. The occiput first meets the resistance of the pelvic floor, obeys the rule and rotates to the front through *three-eighths of a circle.* The behaviour of the shoulders, and the direction of external rotation is rather complicated. For all practical purposes it is safe to say that an R.O.P. after its long rotation behaves as if it had commenced as an R.O.A. This is termed a Reduced Occipito-Posterior Presentation.

2. Unreduced Occipito-Posterior Presentation.

In a small percentage of cases, however, the head descends with increasing extension. There are several reasons why this occurs. Possibly the most important of them is that when the child is lying in the occipito-posterior position, its backbone is resting against that of its mother. The mother's backbone is arched in a forward direction, so that the child lies with its backbone straightened and its head partially extended on its shoulders. When the head descends the extension increases. The *forehead* first meets the resistance of the pelvic floor and rotates to the front *through one-eighth of a circle.* The occiput therefore rotates towards the coccyx, and the head is born with the occiput behind. This is termed a persistent or unreduced occipito-posterior presentation.

Nearly half of the cases of persistent occipito-posterior presentation deliver themselves if they are given sufficient time. This presentation, however, very often makes it necessary for the forceps to be applied to accomplish the delivery. Especially is this true in the case of primiparæ.

The diagnosis of an occipito-posterior presentation should always be made by abdominal palpation.

The condition calls for no treatment. If there is delay in the second stage the forceps should be applied. R.O.P. are very much more common than L.O.P. presentations.

Mechanism of Reduced Occipito-Posterior Presentation.

1. Head descends with increasing flexion.
2. Occiput rotates to the front through three-eighths of a circle.
3. Birth of head by extension.
4. Restitution *may be* through three-eighths of a circle.
5. External rotation through one-eighth of a circle in a direction opposite to that of restitution.

Mechanism of Unreduced or Persistent Occipito-Posterior Presentation.

1. Descent of head with increasing extension.
2. Forehead first meets the resistance of the pelvic floor and rotates to the front through one-eighth of a circle.

3. Head born by a combination of extension and flexion.
4. Restitution through one-eighth of a circle in the direction opposite to that of internal rotation.
5. External rotation through one-eighth of a circle in the same direction as the movement of restitution.

Breech Presentations

There are four positions :

1. L.S.A. or Breech 1 : The child's sacrum is to the left of the mother's pelvis and in front.
2. R.S.A. or Breech 2 : The child's sacrum is to the right of the mother's pelvis and in front.
3. R.S.P. or Breech 3 : The child's sacrum is to the right of the mother's pelvis and behind.
4. L.S.P. or Breech 4 : The child's sacrum is to the left of the mother's pelvis and behind.

Mechanism.

1. The bi-trochanteric diameter lies in the oblique of the pelvis.
2. The anterior thigh rotates to the front. When the breech undergoes internal rotation the shoulders and head rotate at the same time.
3. The shoulders engage the pelvis in the antero-posterior diameter.
4. The head enters the pelvis in its transverse diameter.

I advise you, when you retire for the night, to imagine yourself being born. Bend yourself over the side of the bed, undergo internal rotation and all the other movements, and you will soon master the mechanism of normal labour. If you are sufficiently poetic you can lie snugly in bed and go through all the movements in your imagination.

There are two rather important points to remember :

1. The child obeys the ordinary laws of mechanics, and if a doll were being born it would behave in the same manner.
2. Although we have described in some detail the principles of the mechanism of normal labour—yet

it is only rarely that a delivery shows all the points mentioned. For instance it is a very rare event to see the separate and distinct movement of restitution.

Caput Succedaneum.

There is very often a swelling on the child's head when it is born. It is called a *caput succedaneum* and is due to the pressure on the part of the head lying over the internal os. It usually disappears within thirty-six hours.

If the presentation was an R.O.A. the caput will be on the *left* side of the child's head, while if it was an L.O.A. the caput will be on the *right* side of the child's head. This information is often of value in showing in which direction the shoulders should rotate.

CHAPTER XI

THE FIRST STAGE OF LABOUR

> Sleep, that knits up the ravell'd sleave of care,
> The death of each day's life, sore labour's bath,
> Balm of hurt minds, great nature's second course,
> Chief nourisher in life's feast.
>
> *Macbeth*, Act ii. Scene 2.

It is not often that a nurse is able to choose the room in which the confinement is to take place. If a choice is allowed there are various points worth considering.

A room on the ground floor is to be avoided because when the woman is convalescent, she has only to step outside her bedroom door to be in the rush of household arrangements. The confinement, therefore, should take place in a room on the first floor, conveniently near to the lavatory, and looking out on to the garden. There must be a fireplace in the room, for it is a tradition in this country that the babe should be greeted by a cheerful fire, however warm the day may be. Besides being cheerful company the fire is useful for heating water, and warming the clothes for the mother and child.

The less furniture there is in the room, the better. Remove the china cats and dogs from the mantelpiece. Cover the carpet with a sheet, for a stain on the carpet lasts a long while.

Try and procure a single bed which should be placed well away from the walls, so that you can easily get round it, and attend the patient from either side. While arranging about the bed try and get three wooden planks about nine inches wide, and just longer than the width of the bed. They are very useful to put underneath the mattress during

the second stage of labour, as they do away with the sagging of the springs, and allow the patient's buttocks to be brought well over the edge of the bed.

First Stage of Labour, *i.e.* up to Full Dilatation of the Os

Give the woman a bath. Theoretically this is bad as the dirty bath water has free access to the vagina. In practice, however, it is found to be safe and highly desirable, so long as the membranes are intact. Put her into bed with a clean night-dress between clean sheets. Clip the hair on her external genitals. It would be better of course to shave this area, but patients in private object to being shaved. If the patient is a primipara just starting labour, give her two ounces of castor oil. If she refuses to take oil, give two ounces of Mist. sennæ co, or two or three of any of the many pills now in use, but the oil is the best purgative. Do not give any purgative to a multipara until after the baby is born, but give her an enema as soon as she is in bed. Now inspect the house. Go into the kitchen and find out the facilities for boiling water. See what kettles and saucepans you can rely upon. If there is a gas stove see how it works. If it works on the slot principle find out where you put the coins in, and ask whether pennies or half-crowns are necessary. I remember applying the forceps on one occasion, and when the second blade was just in place the light went out. As everybody in the house was uselessly drunk those in the room had been expelled. After a lot of shouting we discovered where the meter was and a penny was duly inserted. Not many minutes later the same process had to be repeated in every detail. Remember that if the case is normal the baby will come in spite of you. If it is abnormal the main thing that the doctor will require is plenty of hot water. The capacity for providing unlimited amounts of hot and cold water is the cardinal virtue of a maternity nurse.

Palpation.

We might as well discuss abdominal palpation now. It is a very important subject indeed. In the vast majority of

cases it affords all the information required to conduct a case properly. Now there are two main things that you will want to find out about any case. 1. Is there a polar presentation ? 2. Is the presenting part into the brim ?

Let me remind you that Providence has seen fit to provide us with eyes, hands and a tongue. These three gifts are all to be used when examining the abdomen. In medicine the order is : (1) Eyes, (2) Eyes, (3) Eyes, (4) Hands, (5) Tongue, if at all. There is no need to alter this order in midwifery.

If you are standing at the foot of a bed in which a woman, at term and uncovered from the breasts to the pubes, is lying, what information can you obtain without asking a question ? You can see :

1. That the patient in bed is a woman.

2. Whether she looks well or ill. Whether her eyes look extra bright or her face is puffy. You can notice if she is pale or cyanosed, and if she is breathing more rapidly than she should. It is usually possible by watching her hands or her neck to estimate the pulse rate. Finally, in a few cases, particularly in dark women, you may see a dark patch of pigmentation on both cheeks, shaped something like a butterfly's wing.

3. Whether the breasts are enlarged, and whether any large veins are running over them. It is possible to see the areas of pigmentation round the nipple, and Montgomery's follicles. You may see a stiffened or wet patch on the night-dress showing where colostrum has escaped from the breast.

4. That there is a swelling in the abdomen. This swelling reaches from the pubes, almost to the ensiform cartilage, and is much longer than it is broad. It may be in the middle of the abdomen, but the right flank usually appears fuller than the left.

5. Running down the middle line of the abdomen, from the ensiform cartilage to the pubes there is a black line called the linea nigra. This line is usually more marked in a dark woman, but the depth of pigmentation is very variable.

The umbilicus, which usually gets flattened by the tumour, is often the darkest area of the linea nigra.

6. There will probably be "streaks" running from the middle line of the abdomen to the flanks. These "streaks" or "lines" are called the "striæ gravidarum" and are caused by the pregnant uterus which stretches the skin. In a primipara they are of a bright pink colour. After the pregnancy they contract and become a silver-grey colour. If, therefore, there are a large number of pinkish striæ and no white striæ, then it is almost certain that the patient is a primipara. If there are white, as well as pink striæ, the patient is probably a multipara.

There are two points that it is necessary to bear in mind :

(*a*) Striæ may be caused by any abdominal tumour, *e.g.* an ovarian cyst.

(*b*) A woman may have many children and yet not have any striæ on her abdomen. It is often possible, however, to find in such women, white striæ on the posterior aspect of the iliac crests, on the buttocks, and even in the skin folds bordering the vulva.

7. This swelling in the abdomen could of course be caused by an ovarian cyst or a uterine fibroid, but if you look long enough and carefully enough you will usually see fœtal movements. You will then know that the swelling in the abdomen is caused by the pregnant uterus, and that the child is alive. By noticing where the movements occur it is often possible to diagnose the lie of the child. If they are high up in the abdomen it is in all probability a vertex presentation.

It is possible after a very little practice to say :

1. That the patient is a woman.
2. That she is pregnant.
3. That she is at or about term.
4. That the fœtus is alive.
5. That it is a vertex presentation.
6. What is the position of the fœtus.

Over and above these points you know whether the woman is well or ill.

If the lie of the child is not longitudinal but transverse the case is abnormal.

If the woman is ill, it is not necessary for you to make any diagnosis, the case is abnormal.

It is often possible to diagnose a case of " kidney of pregnancy " by a glimpse of an ankle at the other side of the ward. Look at the ankles, if they are swollen, test a catheter specimen of urine for albumin.

Of course you cannot in your practice uncover a woman and stare hard at her while you are making these observations. After practice, however, you will notice these points so easily and naturally, that you could in the majority of cases, conduct the confinement without asking a question.

Now for the hands. Do not forget to warm them, either in front of the fire or in warm water. It is frightfully uncomfortable to have cold hands laid violently upon one's very own " stomach ". Not only is it uncomfortable for the patient, but it defeats your own ends. The woman tightens her muscles and you feel nothing. Palpate her gently then, with nice warm hands.

There are three well-known grips that you are supposed to use. (1) Over the brim, (2) At the level of the umbilicus, (3) At the level of the fundus.

1. The first grip is called " Pawlik's Grip ". It is the most valuable, and as a rule, tells you three things : (1) Whether there is or is not a presenting part ; (2) whether that part is a head or a breech ; (3) whether the presenting part is into the brim. These are the only things that it is necessary to know. The other two " grips " are only used to confirm what you have found out, and to add to that information whether the fœtus is lying as an " L.O.A. " or an " R.O.A."

It would be quite absurd for me to give any of you a painting block and some paints and tell you to paint a picture. It would not be much of a help if I added to my gift a small lecture on how to mix paints. The way to learn to paint is to watch others paint, to examine their work, but above all to paint yourself. So is it in the matter of saving perinæums, examining abdomens, and in the other refinements in the art of medicine. Therefore I say to you, go to the labour ward and watch people examining patients.

After you have watched others, try yourself. It is in this manner that you will appreciate the difficulties and learn to overcome them. I do not intend, therefore, to spend much time in describing these manœuvres.

Sit on the edge of the bed on the right-hand side of the patient, and facing her. Now take your right hand and see what you can grasp between your thumb, which is to the right side of the abdomen, and your "bunched together" fingers. In nine cases out of ten it will be possible to state whether what you grasp is or is not a head. In every case you will be able to decide whether the presenting part is well

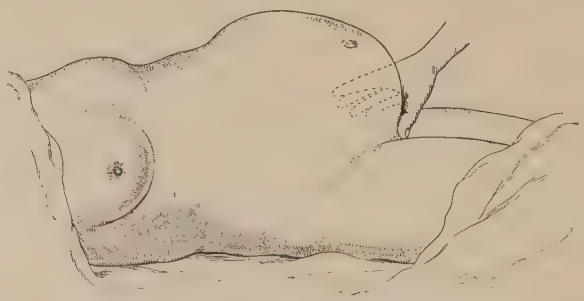


Fig. 14.—Pawlik's grip. By this grip it is usually possible to find out (1) whether there is a presenting part, (2) whether the presenting part is a head, (3) whether the presenting part is engaged.

into the brim of the pelvis. This is the essential thing to discover.

The two other grips merely help you to confirm what you find by Pawlik's grip, and to tell you on what side the fœtal back is lying.

Still keep in the same position, and take both your hands and lay them palms downwards on the abdomen, at the level of the umbilicus. Move your hands outwards to the sides of the uterus. What you have got to do now is to distinguish between the fœtal back and limbs. It may be very easy, on the other hand it may be extremely difficult. There is one thing to beware of, that is the round ligament on either side. It is a ligament as thick as a pencil, which runs into the uterus on either side, just above the level of the umbilicus. It is, I say, very easy to mistake one of these

ligaments for the back. The limbs will usually be well towards the mother's back. If you are lucky the baby will stretch himself and you will feel the limbs moving, and the diagnosis will be settled. If you are not able to decide by this grip, just note which side of the uterus seems to offer the greater resistance. The back side usually feels firmer. Now pass on to the fundal grip. You may ask what is the use of the fundal grip. If you are certain that it is a head presenting, and have been able to make out the position of

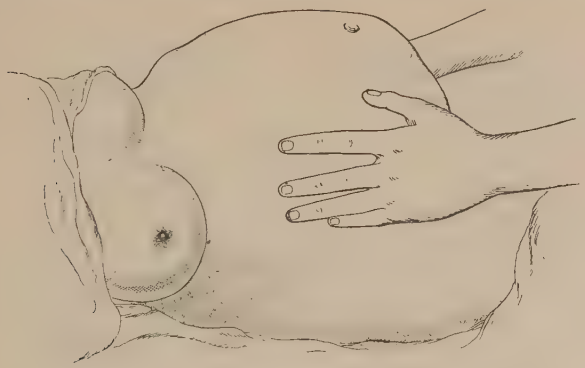


FIG. 15.—The umbilical grip. Both hands are laid on the abdomen, one on either side of the umbilicus, and well towards the mother's flanks. It is nearly always possible to feel the back of the fœtus on one side and the limbs on the other.

the child at the umbilical level, then it is not necessary. If, however, the head has not been located, it must be looked for at the fundus. Slip both your hands up the side of the abdomen until you come to the level of the fundus, and carry out the same manœuvres as at the umbilical level. If the head has not been found and there is a round hard mass at the fundus, movable apart from the rest of the body, then that is the head and the presentation is a breech. In a certain number of cases this is definite and simple. In other cases even after careful examination, it will be impossible to say where the head is. It is sometimes a help to press the fundus down towards the pubes. This bends the child's back and makes it more prominent and easy to feel. Sometimes it is a great help to dig the fingers into the abdomen at different levels,

much as a child digs its fingers into dough. By this plan, which is called "dipping", while keeping up a running conversation with the woman, a lot of information may be gathered in a difficult case. If you can make out nothing definite, cover the patient up and try again in half an hour's time. Always have warm hands. Always be gentle. Always have the abdomen completely uncovered. It is more difficult to palpate through a night-dress or any other article of clothing, and errors are therefore more likely to

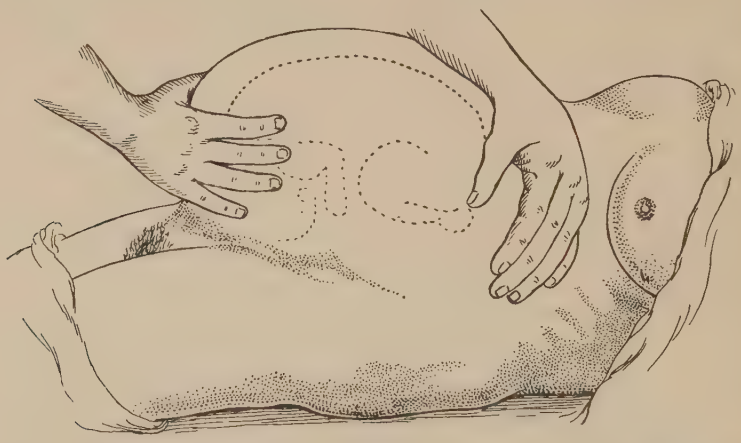


FIG. 16.—Flexing the fœtal back. The fore-arm of the left hand exerts pressure on the top of the abdomen. By this manœuvre the fœtal back becomes more arched, and the limbs more easily palpated. By using the fore-arm to exert the pressure both hands are left free to palpate.

occur. No man or woman wants to be unnecessarily exposed, but on the other hand no one wants modesty to stand in the way of good treatment.

The Fœtal Heart.

The next thing to do is to take a clean towel and spread it over the abdomen and listen for the fœtal heart. You can of course use a stethoscope if you prefer it. In an L.O.A. or L.O.P. position the heart is usually heard on the mother's left side and well below the umbilicus. In an R.O.A. or R.O.P. position it is usually heard on the right side well

below the umbilicus. In breech presentations, on the other hand, the heart is usually heard either at or above the level of the umbilicus. Do not place too much reliance on where it is heard. It is often a valuable aid, and helps to confirm what you have already found out.

I assure you, however, that the heart is desperately deceitful, even in the womb. Not so very long ago I was called to see a case by a woman of great experience in midwifery. She said that abdominal palpation suggested a breech presentation, but as the fœtal heart was heard well

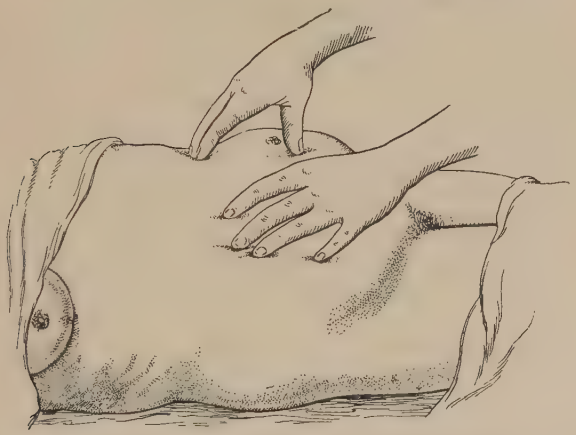


Fig. 17.—Dipping. The tips of the fingers of both hands are "dug" into the abdomen at various levels. By this manœuvre it is often possible to find out the position of the fœtal limbs.

below the umbilicus, she was satisfied that the child was presenting as a vertex. It was a breech presentation. Curiously enough I was able several times in that very week, to demonstrate the fallacy of relying on the area where the fœtal heart is heard, to make a diagnosis of the position of the child.

I have often seen people, who have considered themselves skilled obstetricians, spend quite a long time trying to pick up a fœtal heart, although fœtal movements were obvious to any onlooker. A baby cannot kick if its heart is not beating.

Occasionally the fœtal heart cannot be heard although

the child is alive. I remember one case where no one was able to hear any fœtal heart, although several observers listened at frequent intervals during a whole week while the woman was waiting to go into labour. She subsequently delivered herself of a living, healthy child, weighing 12 pounds! If you cannot hear the fœtal heart it does not necessarily mean that the child is dead.

When listening for the fœtal heart:

1. Always have the patient lying on her back.
2. Always hold the mother's hand and feel her pulse while counting the fœtal heart. In some cases when the maternal pulse rate is fast it is extremely difficult to be sure that you are hearing the fœtal heart.
3. Always count the heart beats for at least a full minute.
4. Always wait until the pain has passed off for some seconds before counting. During a pain the fœtal heart rate becomes slower and the beats are less easily heard. After the pain passes away the fœtal heart rate becomes very fast, and then after a few seconds returns to its normal rate.

It requires considerable practice to pick up the fœtal heart. If you hear nothing press your ear more firmly against the abdominal wall. Alter the pressure of your ear, as well as change the area over which you listen.

When the head is about to be born it is very often impossible to hear the fœtal heart.

The usual rate is somewhere about 140 beats to the minute. Sometimes, however, the rate is never more than 120. If the rate increases to about 160 and then drops to 120, or even to 100, it is almost certain that the child is in distress. This drop in the rate is often associated with violent fœtal movements, and the passage of meconium.

No patient ought to be left too long in the second stage of labour. Neither the mother nor the child should be allowed to show signs of distress. The fœtal heart, although not absolutely reliable, is the best guide we have as to the condition of the child. If all during labour it has been regular and beating at a definite rate, and then becomes definitely slower, or irregular, or more difficult to hear, it

must be assumed that the child is in distress. Often you will find after the birth of the child that it was only shamming! Listen then for (1) the rate, (2) the regularity, and (3) the loudness of the fœtal heart. It is apt to deceive you as far as the position is concerned.

Finally we may see what we can find out with our tongues. Undoubtedly you have already learned a lot from the woman herself, and from the enormous number of relations who are sure to be in the room. What are the points that are necessary?

1. How many babies has she had? Did she have any difficulty with any of them? Was it "instruments" or was the baby "cut"?
2. Where did she have her babies and who looked after her? If she had trouble although she was looked after in a well-run maternity hospital, the prognosis is obviously worse than if she had been attended in the country.
3. How many weeks pregnant is she? Is she at term?
4. Has she had good health during this pregnancy?
5. On which side does she feel the fœtal movements? This is most valuable information, and far less likely to lead to a wrong diagnosis of position than the position of the fœtal heart.

Before covering up the patient look at the legs for œdema. While doing this do not forget the "brawny" type that does not cause much swelling, and is extremely difficult to "pit". If there is any œdema present take a catheter specimen of urine and test it for albumin. If a nurse is going to conduct cases on her own she must carry a test-tube, a spirit lamp and some acetic acid. Three-quarters fill the tube with urine, and hold it by its lower end. Now boil the top inch of urine in the flame. Add three drops of acetic acid. If any white deposit remains in the top of the fluid, albumin is present. Do not rely on any other test.

You are now in a position to say whether the case is normal. There are only five questions to decide:

1. Is the woman well?
2. Is the presenting part a head?

3. Is the head engaged in the pelvic brim?
4. Is there any bleeding or history of bleeding from the vagina?
5. Is there any albumin in the urine?

If these five questions can be answered satisfactorily the case is normal. Otherwise the case is abnormal.

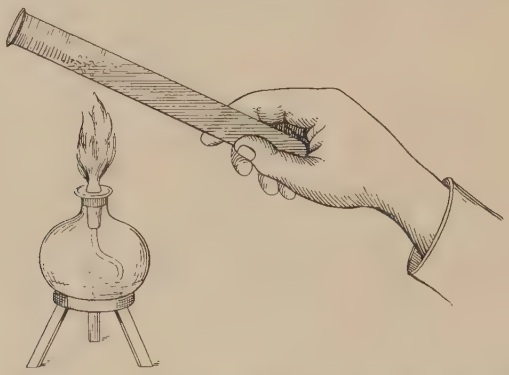


Fig. 18.—Testing urine. The test tube should be two-thirds filled with the urine. The tube should be grasped at the lower end, and the upper inch of urine allowed to boil.

Remember that inspection, plus Pawlik's grip will in nine cases out of ten give you sufficient information to answer these questions.

If there is an offensive vaginal discharge, or if there are sores on the vulva, the case must be reported to the local supervising authority. A vaginal discharge, however, does not make a case of labour abnormal.

CHAPTER XII

THE FIRST STAGE OF LABOUR—*continued*

PELVIMETRY

'Sleep, gentle sleep,
Nature's soft nurse, how have I frightened thee.'
Second part of Henry IV., iii. 1, 5.

Tired Nature's sweet restorer, balmy sleep!
Night Thoughts (YOUNG).

THERE are three measurements commonly taken: 1. The Inter-Spinous; 2. The Inter-Cristal; 3. The External Conjugate.

1. THE INTER-SPINOUS MEASUREMENT is taken between the two anterior superior spines of the iliac crests, it should measure $10\frac{1}{2}$ inches or 26 cm. The measurement should be taken from the outsides of the lowest points of the spines. 2. The INTER-CRISTAL MEASUREMENT is the largest reading that can be obtained when the points of the calipers are placed on the outsides of the iliac crests. It should be $11\frac{1}{4}$ inches or 28 cm. 3. THE EXTERNAL CONJUGATE is taken from the depression immediately below the tip of the spine of the fifth lumbar vertebra, to the top of the front of the pubes. The tip of this spine can be felt about an inch below the level of a line joining the top of the two iliac crests behind. If you make the patient draw her knees up to her abdomen it will be more easily felt. It should measure 8 inches or 20 cm.

It is not of much use discussing this subject further because the only place to learn it is in the wards. Moreover, even should you buy a pelvimeter of your own, the only time

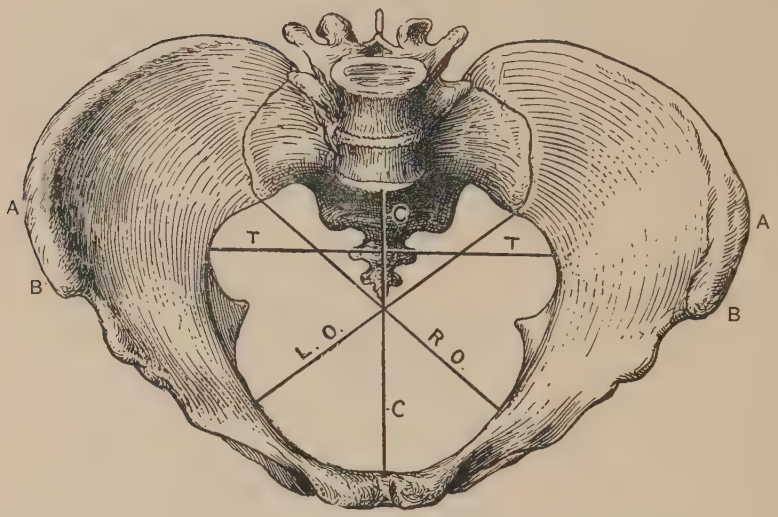


FIG. 19.—The pelvic inlet. T, transverse diameter; L. O. and R. O., left and right oblique diameters; C, true conjugate diameter; A to A, inter-cristal diameter; B to B, inter-spinous diameter. (From Tweedy and Wrench's *Practical Obstetrics*.)

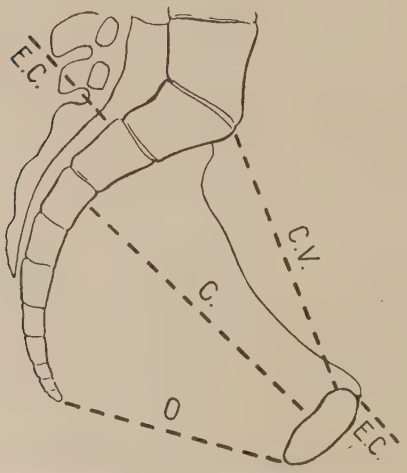


FIG. 20.—Pelvic diameters. E. C., external conjugate diameter; C. V., true conjugate diameter; C., cavity; O., outlet of pelvis.

it would be of value to you would be in the case of a primipara when she is only thirty-six weeks pregnant. If such a woman came to book you for a confinement, and you found her measurements small, you should at once send her to a hospital, or a doctor. It might be advisable in her case to induce labour. Otherwise, if the patient is a primipara at term, and the head is unfixed, it does not matter a button what her measurements are, she is an abnormal case. If she is a multipara, the fact that she has had babies without any trouble is of more value than all the pelvimeters in the world.

True and False Labour.

It is essential to find out whether the woman is or is not really in labour. It may be very easy, and it is sometimes very difficult to be sure of this. What then are the disadvantages of leaving a woman in false labour ? Well labour, false or real, is a trying ordeal. If she tires herself out with false labour she will not be in a fit condition to start " having her baby ". If an athlete tires himself out and loses sleep he will not win his race on the morrow. Do not forget that labour is a very severe physical ordeal. The tired-out woman starting labour is likely to go into primary uterine inertia, or she may have her baby, and be more likely to suffer from post partum hæmorrhage. On the other hand, supposing you say she is not really in labour when she is, how do you lose ? Why simply that you may be out playing golf, or miles away on a visit, when the baby is in the bed. They won't think much of you. Worse than that, she may actually be in obstructed labour and stand in urgent need of help if the life of her baby, and even perhaps her own, is to be saved, while you go home for the night saying she is not in labour.

If you want to go somewhere and you have a choice of two cars to go in, the one a limousine and the other a common or garden Ford, which will you choose ? The limousine of course. Supposing, however, I warned you that the lovely looking limousine was very unreliable and that it was doubtful whether it would even start, then which would you choose ? Why the car that got there. It is the getting there

that is the most important thing. So it is in labour. As a general rule the acid test to apply in finding out whether the woman is in labour, is to find out whether she is getting on with the work of expelling the baby. That is to say, is the head going further down into the pelvis with the pains, and are the other signs increasing? This is the main consideration and now for a few helping points. Always remember that false labour will in the vast number of cases go on into real labour. A true pain is a contraction of the uterus that can be felt by the hand placed on the abdomen.

There are four stages in a true pain :

1. The observer feels the uterus to contract, but the woman feels no pain.
2. The woman feels the pain.
3. The woman ceases to feel the pain, although the contraction persists.
4. The contraction passes away.

The contraction may last about one minute while the sensation of pain only lasts about half a minute. In true labour these pains recur at regular intervals and are more frequent as it advances. As soon as labour has definitely commenced the pains usually occur every five minutes. The interval between them is seldom longer than eight minutes.

A true pain tends to start in the lower abdomen but to be felt at its worst in the small of the back.

As labour advances the head goes further into the pelvis so that it can no longer be felt by Pawlik's grip.

Towards the end of the first stage an increasing amount of "show", *i.e.* a mixture of blood and mucus, is seen at the vulva. There is one other point on which some people lay stress, but which does not seem to be true in many cases, and that is the disappearance of the pains when the doctor comes into the room. As the doctor comes in with a cheery "good day" the pains are supposed to fly away. He waits and gets impatient. The nurse hastens to explain that the pains were very strong and frequent just before he came.

Now for false labour. The pains may appear to have the same characteristics as true pains. On the other hand they may be more in the nature of cramps, the woman feeling

pain all the time that the contraction lasts, and even when you cannot even feel any suggestion of a contraction. The pains occur at very irregular intervals. Two or three pains may come together, followed by an interval. Sometimes the contraction lasts a very long time, even five minutes. During the false pain the woman cries out a lot, and tires herself out by throwing herself about. The more attention and sympathy you show her the more frequent will be her pains.

These false pains are usually felt in the lower abdomen, and not in the back. They may of course be in the back.

The head does not go further down into the pelvis but remains easily felt by Pawlik's grip.

There is no show.

When the patient hears the horn of the doctor's car she starts to shout, and makes a lot of noise until he is safely out of the way. If she is "knowing" she will ask for morphia, otherwise she will merely ask for something to take away the pain. Always give such a patient a good warm enema, and in most cases the pains will cease.

Now those are the points which you must bring up at the examination, and they are to a certain extent true. I want, however, to ask you to remember the cases in the labour ward which you have seen, and about which there was any doubt. Those of you who have been through your course there will know whether or not the picture I draw is true.

The patient, we will say, is in bed. She is a primipara. She came in two days ago because she was at term and had pains. The pains were chiefly in her lower abdomen. She slept fairly well the first night, after her bath. The night-sister did not think she was in labour. Her bowels acted well the next morning and the pains she had were put down to the purgative. Towards evening she complained about her pains and she did seem to be having them at fairly frequent intervals. Sister thought she might be in labour. The woman lies on her side and groans in the intervals between her pains just as much as she does when they occur. Towards night the pains pass away again and the next sister is quite sure she is not in labour. One of us comes up. We have not watched her for long. If we are wise we do not commit ourselves. What we do is to try Pawlik's grip.

If the head has not gone down and there is no show, we assume she is not in labour and give her morphia. This state of uncertainty may last for several days, although not often for more than forty-eight hours. The one thing necessary is sleep.

> Sleep that knits up the ravell'd sleave of care,
> The death of each day's life, sore labour's bath,
> Balm of hurt minds, great nature's second course,
> Chief nourisher in life's feast.

How can you give her sleep ? I need not describe to you what popular novelists make the nurses in the books do. You can clear out all the people from the room, a very difficult feat I assure you. You can see that her bowels are emptied with a warm enema, which sometimes acts like a charm. You can sponge her with hot water. You can give her a hot drink. You can comb her hair. If you are an expert you can massage the face and forehead. You can reassure her, can read to her, can spray her with scent, and do the hundred and one little things that suggest themselves to your woman's mind. A hot water bottle to the abdomen may be a great help. Supposing these things fail ? Then 10 grs. of aspirin followed by a hot drink should be tried. In some places you are allowed to give opium. The essential thing is that the woman must have sleep. If these things fail you must get a doctor who will give morphia.

Now then let us for a moment go over what we have done. We have got to the house, have bathed and put the woman to bed. We have given her a purge and clipped her genital hair. We have examined her carefully and found that the lie of the child is normal, and that a head is presenting, and is well into the brim. We have seen that there is no albumin in the urine. Moreover we are convinced that the patient really is in labour.

It is just as well to keep the patient in bed all during labour. She is going through a severe physical ordeal and it is well to conserve her energy. Women who have already had children may prefer to walk about the room during the first stage of labour. If the case is presenting as a breech, or there is any reason to suspect the early rupture of the

membranes, it is necessary to keep the patient in bed during the whole course of the labour.

If she fancies light food let her have it, but do not urge patients to eat, and never allow them to eat a heavy meal. Water is quite enough for the duration of labour, and will not add to the feeling of nausea which is often present.

If you have not already got the boards for the bed try and get something suitable now. A leaf of a table will serve the purpose. Get a bath or a big basin to put under the bed. Before discussing the various things to be got ready, let us discuss the obstetrical bed.

First of all let us think of the bed that you or I slept in last night. On top of the bedstead was a mattress. On it may have been a blanket. Our mothers always rightly contended that a blanket there helps to keep one warm. Then there was a sheet. Well that is all the ordinary individual requires underneath. The hospital patient, however, cannot get out of bed and his sheet gets soiled. To overcome this difficulty a rubber sheet is placed on top of the ordinary sheet, and stretches from just below the level of the pillow, to half-way down the bed. A rubber sheet is cold to lie upon so it is covered by a draw-sheet, which is tucked in "bunched" on the left side of the bed. Now you recognize the ordinary hospital or puerperal bed. An obstetrical bed aims at one further refinement. Another rubber sheet therefore is placed on top of the draw-sheet. It should be longer than the first one, so that it will drop over the right hand side of the bed into a bath during the second and third stages. It, in its turn, is covered by a draw-sheet. As soon as the placenta is away the top draw-sheet and rubber sheet are removed, and the patient is left undisturbed on the puerperal bed. When you can deliver a woman and drop her clean on to her puerperal bed, and not have to change her night-dress, why then you will be a "midwife". Of course you may only have one rubber sheet and you may have none. Let me recommend brown paper to you, it is an excellent substitute for rubber. Clean paper is better than dirty sacks or curtains, which are not infrequently used.

What has to be prepared for the delivery? 1. Swabs. 2. Instruments. 3. Gloves. 4. Ligatures.

Swabs.—Tear a large number of pieces of cotton wool of a suitable size, and boil them in a sauce-pan for twenty minutes. Then tip them into a wash-basin or some suitable bowl containing a strong solution of biniodide of mercury in cold water. The water in which the swabs were boiled will of course dilute the antiseptic. Cover the bowl with another similar bowl, inverted, or with a clean towel. Learn to be generous with your swabs.

Instruments.—Boil two artery forceps, one pair of scissors, one catheter, one pair of dissecting forceps, and one mucus-catheter. An ordinary sponge bag is a very convenient thing in which to put all the instruments. It can be dropped into a sauce-pan or a kettle of boiling water. After the instruments have been boiled for ten minutes the bag can be taken out and the instruments dropped into lysol or some similar antiseptic. The sole reason that you are not advised to put the instruments into biniodide of mercury is that it destroys them. On the other hand biniodide is far the better antiseptic for the skin. Hence the necessity for two antiseptics.

Gloves.—There are three important points to remember about rubber gloves. 1. The gloves should fit properly. 2. They should never be worn if they are punctured. 3. They should always be worn for a delivery. At present most people advise that gloves should be boiled for five minutes and kept with the swabs in biniodide, until such time as they are wanted. The subject is so important that I have discussed it with you in a separate chapter.

Ligatures.—Use linen thread. Twist two strands about a foot long, and knot them at both ends. This forms a very good ligature. Make three, clip them in an artery forceps, and boil them in the sponge bag with the instruments. Keep them in the lysol with the instruments till wanted. We have now got on very well. What more do we want? Well, two or three small tables will come in very handy. On one of them we can arrange the bowls containing the swabs and the instruments. One clean towel will then serve to cover both bowls. It is an advantage if we can have two bowls for washing up. In one we can wash up, and in the other we can have a solution of biniodide 1-1000 in which we can rinse our hands.

The lysol bottle can be left on the table with the instruments, etc. It is often wanted for odd things and is made up roughly to the strength of a drachm, or teaspoonful, to a pint of water.

There is no need to have a separate bowl with boracic solution for the eyes. The swabs out of the biniodide do very well and never cause any evil consequences. A few small pieces of clean linen or gauze may come in useful for removing mucus out of the baby's mouth. It is sometimes difficult to get it away with the gloved finger. Put them on the table near the lysol bottle.

Just a few words about the woman and we will leave the first stage. There are four things to think of: 1. Bowels. 2. Bladder. 3. Vulva. 4. Stomach.

1. *Bowels.*—The castor oil will probably act in about four to six hours. It is well to finish up its action with a good enema. Another enema may be given when the patient is well on in the first stage.

2. *Bladder.*—The bladder of a woman in labour is delightfully obvious when it is full. The woman ought to be able to empty it for herself during the first stage. She will often try, but the measure of the frequency of her efforts is very often in no way commensurate with the measure of her success. Let her get out of bed and try for some time in any posture she likes. Try a hot or a cold compress just above the pubes. If she cannot empty her bladder you must do it for her. Pass a catheter with the usual precautions. Never allow the bladder to remain full, it interferes with the pains.

3. *Vulva.*—Keep the vulva clean. From time to time wipe away the soil and show which will collect there, with swabs from your bowl of antiseptic. Do not let the hands of your patient stray to these parts. Apart from the pain, there is an associated irritation which prompts this action. Explain the danger of it to the patient, and keep your eyes open.

4. *Stomach.*—In the case of a primipara there may be a certain amount of vomiting which will get worse as the second stage approaches. A multipara rarely vomits until the second stage commences. The vomit is usually thin

and of a green colour. Let her drink as much water as she likes, or tea if she prefers it. Those of you who have spent much time at sea will agree with me when I say that it is much more pleasant, or shall I say less painful, to be sick on a full, than an empty stomach. If, then, patients are sick, water will help to make the process less painful.

The temperature and pulse rate should of course remain normal all through labour. If they are raised things are not normal. If they are raised solely as the result of the labour then it is strongly suggestive of obstruction.

CHAPTER XIII

THE SECOND STAGE OF LABOUR

A woman when she is in travail hath sorrow, because her hour is come: but as soon as she is delivered of the child, she remembereth no more the anguish, for joy that a man is born into the world.

St. John xvi. 21.

We must now direct our attention to the second stage of labour. You all know that by the second stage is meant that period of time which elapses from the full dilatation of the cervix to the delivery of the child. How can you tell when this stage begins? Well, naturally, you could tell if you made a vaginal examination. We are agreed, however, that such an examination should never be made in an ordinary case, and it is possible in the vast majority of cases, by observing various signs, to tell within a little of its commencement.

First I want to ask, does it matter whether we know or not? Yes, it is very important. The second stage ought not to last more than four hours in a primipara, or more than two hours in a multipara. Nature of course never has been, and never will be ordered or regulated by the clock. These times are given as a rough guide. If, in an apparently normal case, you see to it that a woman is not left longer than the times mentioned you will never be responsible for a dead baby, or a worn out mother. If the mother gets worn out, then be prepared for post-partum hæmorrhage, and the evils that follow in its train. Do not misunderstand me. Women may be twenty hours in the second stage and have living babies, and not have post-partum hæmorrhage. I have given you a safe rule which you are strongly advised to follow. The forceps should be applied when the head ceases

to advance. If it continues to advance it should be born within the times I have stated. It is therefore essential to know when the second stage begins for the sake of both the mother and the child.

The signs are these :

1. Alteration in the character of the pains.
2. Vomiting.
3. Desire to go to stool, etc.
4. Show.
5. Rupture of the membranes.
6. Descent of the head.

1. *Alteration of the Pains.*—The pains do not become more frequent, but continue to occur at intervals of about five minutes. They become much stronger, so that the woman cries out with the pains, which only last for about thirty seconds. Not only do they become stronger but they alter in character. They become bearing down pains. You read in the books that the woman brings her abdominal muscles into use. That is only part of the picture. Next time you have a bath will you carry out a simple observation? Lie down flat in the bath and then sit up. Watch which muscles you use. You will see that not only all your leg and thigh muscles are called into play, but your abdominal muscles tighten up first. Then, too, the muscles of your arms and hands will be used. When you are standing still and want to walk away with your left leg, do you realize that it is the muscles of your right buttock that first contract ? When a woman has true second stage pains she uses practically all the muscles in her body. Next time you are in the labour ward observe this. Even the muscles of the nose acting on the alæ nasi, are called into play by the forced breathing. The second stage pains are so characteristic that an experienced observer could diagnose the stage of labour by the character of the pains. The pains do not last so long as those of the first stage but they are stronger, and alter in character and become true " bearing-down " pains.

2. *Vomiting.*—Primiparæ often vomit when they commence true and definite labour pains. The vomit consists of a thin green fluid and is not offensive.

After some time the vomiting ceases but recommences when the woman goes into the second stage.

Multiparæ rarely vomit during the first stage, but frequently vomit at the beginning of the second stage.

When, therefore, you see a primipara recommence vomiting, or a multipara commence to vomit, you may be fairly sure that the woman is not far off the second stage of labour. The vomiting is caused by the pressure of the presenting part in the pelvis, and would be caused if a bundle of tow or any other material were pushed into the same place.

One of the most interesting things I have ever observed, is the difference in the behaviour of women in different places. In Dublin it was a very rare event for a primipara not to vomit during the first stage, or for any woman to go through the second stage without vomiting. In Leeds it is very uncommon for any woman to vomit, either during the first or the second stage.

The difference in behaviour is not confined to vomiting. In Dublin it is almost possible to diagnose in what stage of labour a woman is in, and to say whether she is a multipara or a primipara by examining the "show". In Leeds the women have hardly any show. The nurses on duty in the labour ward in Leeds think of ante-partum hæmorrhage if they see an amount of blood which would be considered show in Dublin.

There is one more very marked difference—that is in the sounds that emanate from the labour ward.

Vomiting therefore may not occur, but if it does occur it is a valuable sign.

3. *Desire to go to Stool.*—You, of course, know more about this than I do, and yet it is curious that this important sign is very rarely mentioned by nurses at an examination. The woman feels pressure in the pelvis. Such pressure usually means fæces or urine. She does not know the difference, and that is why she is always asking for the bed-pan. In hospital, where the bowels are emptied, and the bladder is kept emptied, these symptoms are not so marked as they are on the extern.

4. *Show.*—When the first stage of labour has definitely commenced in a primipara, a certain amount of blood, and

clear mucus is often seen round the vulva. This is termed show. During the second stage show may be evident in both primiparæ and multiparæ. It is heavier than that seen during the first stage, and contains more mucus.

When the second stage commences a plug of mucus, called the operculum, may sometimes be seen to come away. It is a thick gelatinous mass of a greenish colour, which probably plugged up the cervical canal, before it became fully dilated. The bleeding is certainly caused by the stretching of the cervix. Practically all the women in Dublin have marked show, which in Leeds is hardly ever seen. I have no explanation to offer.

5. *Rupture of the Membranes.*—In a normal case of labour the membranes usually rupture about an hour after the os becomes fully dilated. They may, of course, rupture early, or they may remain unruptured until the head is born. In the vast majority of cases, however, it is a fairly reliable sign.

6. *Descent of the Head.*—The cervix is a hollow muscular tube which projects from the uterus into the vagina. Where it joins the uterus there is a sphincter, or ring of muscle which closes the upper end of the cervix. This ring surrounds the entrance from the cervix into the uterus, which is called the internal os uteri. Similarly there is a sphincter surrounding the entrance from the vagina into the cervix, which is called the external os uteri. " Os " is the Latin word for " mouth ".

In the case of a primipara the cervix has never been opened. Blood has passed down the cervical canal during the menstrual periods, but the canal has never been stretched enough to admit a lead pencil.

When the uterus starts to expel the child and take up the cervix, the internal os is first stretched. The cervix is gradually dilated and the external os is the last part to be opened. Occasionally nearly the whole of the cervix gets taken up while the area surrounding the external os gets so thinned out, that the lip of the cervix becomes no thicker than the rubber of a rubber glove, although the actual opening remains practically closed.

The external os never really closes after labour, but the

internal os does. In a multipara, then, the external os is more opened than the internal, even after labour has commenced. The cervix also gets taken up much more rapidly. It is necessary to bear these points in mind while discussing the descent of the head.

In both multiparæ and primiparæ the head can be easily grasped by Pawlik's grip at the commencement of labour.

Towards the end of the second stage the head can no longer be palpated through the abdomen, but can be felt by perineal palpation, that is by pressing the finger between the anus and the coccyx during the interval between the pains.

In the case of a multipara the position of the head is a reliable guide as to the stage of labour.

1. If the head can be grasped easily by Pawlik's grip, labour has only just commenced.
2. If the head can be definitely felt by Pawlik's grip, but not grasped on both sides, the os is probably about half dilated.
3. If the head can be easily felt by perineal palpation the os is almost certainly fully dilated.

Things are a little more difficult when dealing with a primipara. The head goes down more slowly, while in those cases where the lip of the external os gets thinned out, the head may lie right on the perineum, although the os is practically closed. Fortunately, this complication is fairly uncommon. The little dimple which represents the external os lies well behind, and can be felt by rectal examination. Even while making a vaginal examination it is easy to miss this little dimple, and to believe that the os is fully dilated. The forceps have occasionally been applied in such circumstances !

By considering these various symptoms it is nearly always possible to know within a little when the second stage of labour commences.

It is very good practice to give an enema towards the end of the first stage of labour, providing the head is not too low in the pelvis. If the head is well into the pelvis, the enema may be retained and come out with a rush as the head is being delivered.

There are three main reasons why it is so desirable to have the lower bowel well emptied before the child is born.

1. If the lower bowel is not empty the pains are less effective and labour is prolonged. Conversely, the warm enema stimulates the pains.
2. If any fæces soil the vulva during the delivery, the risk of sepsis is increased.
3. For æsthetic reasons. The arrival of the Lord of Creation into the world is attended with so much pain, and is sufficiently ignominious and undignified, without being further debased by the unnecessary accompaniment of the waste products, harboured by the lower bowel.

If you have succeeded in finding suitable planks, put them across the bed, underneath the mattress. Do not put them in before the second stage commences, for they make the bed very hard and uncomfortable. Remove them as soon as the placenta is born.

During the whole of the second stage it will be necessary to wipe away the soil from the vulva at frequent intervals. Have the top rubber sheet hanging over the bath so that the "fluid" will run into the bath and not on to the carpet. Use swabs out of the biniodide solution, and hold them with forceps.

We have agreed elsewhere that it is advisable to have the intelligent co-operation of the patient. During the whole of the first stage she should be told not to bear down because it tires her and does no good. Now, however, she should be encouraged to bear down to the end of each pain, and to rest between them. To this end give her something to pull on. Tie a towel or something convenient to the end of the bed and let her pull during a pain. I do not suppose there is anybody here who has not at some time or other tried to row a boat. You will agree with me that it is very difficult to pull an oar unless there is something against which one may get a purchase with one's feet. It is equally difficult to push out a baby without something against which to rest the feet. Newton said that action and reaction are equal and opposite, which being interpreted means, give the woman

a hassock or something to put her feet against when she pulls on the towel. Most nurses remember the towel, many forget the hassock. It is a great comfort and a considerable help. I know a midwife who takes an ordinary bucket and places it on the bed. She then covers the edge with something suitable, and makes the woman sit on the bucket, with her feet on the bed and pull on a towel tied to the end of the bed. A very excellent and efficient method, if somewhat crude !

It is as well to let the woman lie in the left lateral position as soon as the second stage is well started. It is just as comfortable, and allows the vulva to be kept clean without wetting the bed.

Just look around and see that everything is in order. See that there is plenty of water boiling, and that there are receptacles in which it may be carried.

Pressure applied to the small of the back is sometimes a help during the pains. Some women find help from pressure to the abdomen. If that is so, stick your knee into the small of the back, and press on the abdomen with your hands. You have only to think of anybody with a face-ache. A man sits holding his face, pressing hard to relieve the pain. In the same way pressure to the back and abdomen helps the patient in the agony of child-birth.

Perineal Palpation.

As the head descends into the pelvis it ceases to be felt from above. It can then be palpated between the pains, when the fingers are dug in between the anus and the coccyx. Later on it can be seen to stretch the perineum with the pains. Finally the anus itself becomes stretched.

If labour seems to be held up see that the bladder is empty, and if necessary pass a catheter. A full bladder and a full rectum are the only causes of delay in the second stage that a nurse can overcome. You will remember that we have taken great pains to see that the bowels are emptied. Do not forget the bladder. A full bladder is deliciously obvious.

If the head ceases to advance send for the doctor. Remember four hours for a primipara, and two hours for a

multipara. By the time the doctor arrives another hour or two will have elapsed.

How is the woman to be covered during the second stage? In deciding this point there are two considerations. First, it must be in some manner that will allow the vulva and thighs to be quickly and completely uncovered. Secondly, it must expose the patient as little as possible, and allow her to remain warm. Put on a pair of warm stockings, two pairs if you like. Tuck up her night-dress right up to her arm-

Fig. 21.—Covering during labour. The night-dress is pinned well up under the arms. A sheet, to which one or more blankets may be pinned, is allowed to cover the upper portion of the body. The buttocks and legs are covered by another sheet to which blankets may be pinned. It is thus easy to lift up the lower covering and inspect the vulva.

pits and pin it there. Now cover her shoulders and abdomen with one sheet, and her thighs and legs with another. Cover the lower and upper sheets with separate blankets, and pin the blankets to the sheets. Whenever the vulva is to be cleaned all that it is necessary to do is to throw down the lower blanket, which is pinned to its sheet. The upper blanket need not be disturbed.

The Delivery of the Child.

The end has at last come. The head can be seen to bulge the perineum with the pains. The anus is at the

same time distended. Not only does the anus distend, but its anterior wall bulges outside. Instead of being round it becomes shaped like a half-moon. Finally all the folds are obliterated, and the surrounding skin is stretched and smooth. Throw away the lower blanket and sheet and bring the hips of the patient well over the edge of the bed. Now get into your gloves.

Keep the vulva clean with swabs. Do not wring them out before using them, but souse the vulva with biniodide. The head is fully flexed, the only way therefore that it can

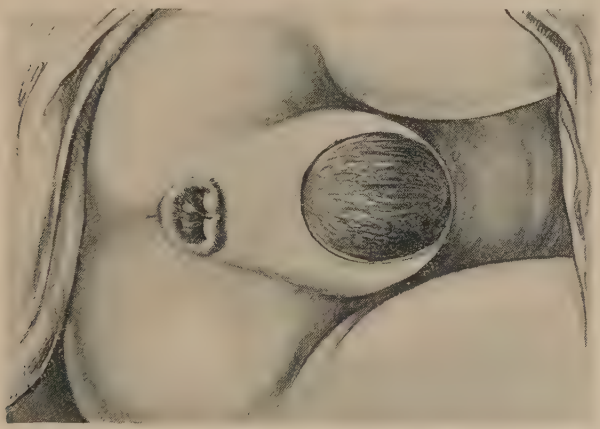


FIG. 22.—Second stage of labour. The head bulging the perineum; the anus stretched and crescent-shaped and the circum-anal folds smoothed out.

be born is by extension. The reason you are washed up for the delivery is that you may save the perineum.

While keeping the vulva clean, and without interfering, watch the battle between the uterus and the perineum, for battle it is. The uterus pushes the head downwards and backwards. The perineum pushes it upwards and forwards. What do you notice ? Well, the head shows with the pain ; as soon as the pain goes the head is lost to sight. The perineal muscles have pushed it back. The uterus pushes again. Again the perineum pushes it back as soon as the pain goes away. As a rule, however, the uterus gains a little ground each time. At last the head comes out a little way out of the

vulva. It shoots back almost with a pop after the pain is over. Finally the head comes so far out that it does not go back when the pain disappears. The uterus has won and the head is said to have crowned the vulva. Do nothing before the head is crowned. The more slowly the perineum is dilated the more chance there is of an intact perineum. Just think of a new pair of kid gloves. If they are pulled on quickly they break at the seams. If, however, they are worked on gradually and slowly stretched, the gloves remain whole and well fitting.

Everybody is agreed that it is a good thing to save the perineum, but everybody is not agreed as to the best method of achieving this end. Nearly every maternity hospital has a method of its own, but the results obtained do not differ widely. In the Rotunda Hospital the sister held the patient's right leg in the air, while the nurse passed her left arm round the patient's right thigh, and prevented the head from being born during a pain with her left hand. In the interval between two pains she extended the head by pressing on the infant's chin, through the perineum. Some methods involve a lot of vaginal manipulations and are strongly to be condemned.

In an effort to get further back to nature I asked the sisters in the Leeds Maternity Hospital to allow a number of women to deliver themselves without being touched by anybody, the nurse standing right away from the bed. It is an extremely fascinating sight to see the head appearing and finally being born, to watch the rotation of the head, and the birth of the shoulders and body in the manner that nature intended. Most women prefer to get into a modified knee-elbow position. Some lie in a modified Sims' position, with their left leg extended, and their right thigh flexed at a right angle.

One hundred women were delivered by what is termed "The Garden of Eden" method. The perineum was lacerated on twenty occasions. Of the hundred patients 35 were primiparæ, and lacerations occurred in 17 of these cases. Only three lacerations occurred amongst the 65 multiparæ. Most of the lacerations required only one suture. Two sutures were used on three occasions, but three

sutures were never required. Nearly half of the tears were caused during the birth of the shoulders. It is little wonder that "B.B.A.'s" are, as a rule, such satisfactory cases.

It is pretty evident that none of the vaunted methods of saving the perineum are of much service. The advantage of leaving the woman to herself is that the delivery takes a longer time, so that the vulva is more slowly stretched.

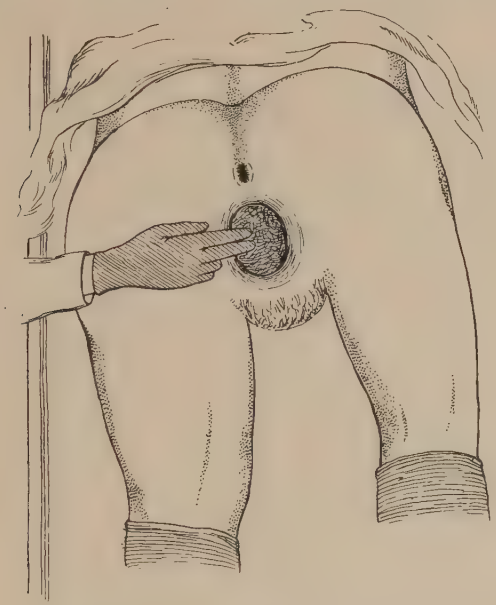


Fig. 23.—The control of the perineum by the modified Garden of Eden method.

Moreover, the legs are kept close together, so that there is more loose skin than when the thighs are well separated.

The disadvantage of leaving them entirely alone is that in some few cases the woman clings to the head of the bed and pushes the baby out violently. I therefore asked the sisters to allow the nurses, with two fingers, merely to prevent the head from being born "with a rush". The woman was allowed to get into any position she chose. After the head was born, the nurse wiped the eyes, and then when the next pain occurred guided the body up towards the mother's umbilicus. Two hundred patients were delivered by this

modified "Garden of Eden" method, and the results are shown in the following table :

	No. of Cases.	Perineum Intact.	Perineum Lacerated.
Primiparæ ..	63	46	17
Multiparæ ..	116	112	4

I have no hesitation whatever in strongly recommending this method of delivery, which can claim the following advantages :

1. The results are as good if not better than those claimed for any other method.

2. It is as near to nature as possible.

3. The nurse's fingers should not come into contact with either the rectum or the vagina. There is no feeling for the cord. If the cord is round the child's neck it can easily be pushed up over the shoulders after the anterior shoulder is born.

4. The woman can get into any position she pleases. It is a curious fact that most women tend to get into a modified knee-elbow position, the position advocated by the early writers on midwifery for difficult cases of labour. There is no doubt that the woman is working at a disadvantage when in the left lateral position.

5. The right leg is not held up in the air, a position which makes the woman acutely conscious of her exposure.

Points about the Delivery

1. Explain to the mother that the baby is almost born. Ask her not to hold on to the end of the bed. Tell her that when the head is going to be born you will ask her to open her mouth and to stop bearing down. It is no good shouting at the woman and smacking her at the crucial moment, if you have not explained what you want done beforehand.

2. Allow the mother to cause the head to be born, and merely prevent it from being born in a hurry. Two or three fingers are quite sufficient for this purpose. It may be necessary to squeeze or coax the perineum over the chin.

3. As soon as the head is born wash the face with swabs out of biniodide. Pay particular attention to the eyes.

4. Put a finger in the mouth and remove any mucus

before the baby takes a breath. Wrap a small piece of sterile linen round your finger.

5. Wait for the next pain and after the anterior shoulder is born, guide the child's body towards the mother's umbilicus. If there is much delay before the next pain draw the child's head downwards and backwards until the anterior shoulder is born.

6. If the cord is round the child's neck slip it up over the shoulders.

After the child is born turn the mother on to her back and place the infant between her thighs. As soon as the cord stops beating tie it in the manner described in Chapter XVI.

The Shoulders.—The shoulders very rarely cause any trouble during a delivery. There is no need for hurry. Wait for the pain that follows the birth of the head. If the child becomes very blue, and if you see its face begin to twitch, draw the head downwards and backwards. You ought to know which way the head should rotate, and you can guide the head in that direction. While grasping the head keep your fingers away from the vulva.

The Cord.—The umbilical cord usually measures about 20 inches in length. It may be very short. In one case recorded there was no cord at all, but the child was attached directly to the placenta. It may be relatively short. That is to say, it may be wound once, twice or three times round the child's neck or body. A short cord occasionally delays the birth of the child, and may actually strangle the infant. There is no need to introduce your fingers into the vagina to find out whether the cord is round the child's neck. Wait until the anterior shoulder is born and then slip the cord up over the shoulders. In very rare cases, it may be necessary to cut the cord between two clips. I do not think this is likely to be necessary in a normal case of labour. If the cord is so tight it will probably hold up the head and make it necessary for the forceps to be applied.

CHAPTER XIV

THE THIRD STAGE OF LABOUR

> Thousands at His bidding speed
> And post o'er Land and Ocean without rest:
> They also serve who only stand and waite.
> "On his Blindness," MILTON.

WE will now pass to the consideration of the third stage of labour. I do not think that there can be any shadow of doubt that a great deal of harm is done by the mismanagement of this stage. A large number of people who practise midwifery do not know for certain when the placenta has left the uterus, and yet it is the only stage in midwifery that calls for the active interference of the attendant.

The placenta, as you know, is attached either to the anterior or the posterior wall of the uterus, usually in its upper part. The uterus becomes very much smaller after the baby is born. The placenta does not get smaller. The placenta and uterus, therefore, have to part company.

I want you to try an experiment which illustrates how the placenta becomes detached. Take a piece of elastic—an ordinary suspender will serve the purpose—and get somebody to pull the two ends and keep the elastic stretched. Now take a piece of adhesive plaster and stick it firmly on to the stretched elastic. Wait a minute or two until the plaster becomes well stuck, and then ask your friend to release one end of the elastic. You will see that the plaster becomes unstuck.

The direct opposite of this experiment can be performed when mending a puncture in the inner tube of a cycle tyre. Suppose you were to use a piece of linen instead of a rubber patch to mend the puncture, what do you think would happen? Why, when you blew up the tyre the tube would

get larger but the linen would not stretch. In that case the patch would either come off, or the tube would tear. In the same way the placenta, like the adhesive plaster or the linen patch, has to come off when the uterus continues to contract and retract after the birth of the child. For certain reasons that we need not go into, it usually becomes partly unstuck, or, as it is termed " detached ", at its centre. The uterus then relaxes. The space between the separated portion of the placenta and the uterine wall becomes filled with blood. When the uterus contracts next time it squeezes the blood, so that still more of the placenta becomes separated. Still more blood fills up the increased space which is left when the contraction passes away. Finally the whole placenta gets separated. The placenta is now free in the uterus. The uterus treats the placenta as it treated the baby and drives it into the vagina. Once it is in the vagina the uterus cannot push on it any more, and there it usually stays until it is expressed by the attendant.

I can almost hear someone say, " That is curious, how did the placenta come away in olden days before it was pushed out by the so-called Dublin method? " I will tell you. Women in those days were not delivered on beds as they are now. They had their babies in a crouching attitude, and the placenta fell out when it separated. Sometimes the woman simply walked back to the village with her baby and the placenta fell out on the way. This is what happens in many parts of Africa to-day. Even in parts of Italy the woman about to be a mother goes off into the mountains with her husband. After the child is born the husband divides the cord, using two stones, and buries the placenta. They then return to their family with the babe that they " found on the mountain side ". If our patients in the labour ward were allowed to walk about, the placentæ, after they had separated, would fall on the floor and would not need to be expressed.

It is no exaggeration to claim that the placenta would hardly ever be retained if the third stage were conducted properly. Eve's third stage should serve as a model for all time—she was left severely alone.

Wherein then lies the danger? It is in the anxiety on

the part of the attendants to get the placenta away. They keep trying to find out whether the placenta has left. They irritate the uterus. It contracts irregularly. The placenta gets separated at its edge instead of at its centre. The blood does not then stay behind as a retro-placental hæmatoma, but dribbles away every time the uterus relaxes. Think of the uterus as a thoroughly bad-tempered, irritable old gentleman with gout. Avoid touching the uterus as you would avoid touching his toe.

So much for theoretical considerations. How can you actually tell when the placenta has been expelled into the vagina ?

1. (*a*) When the baby is born the level of the fundus of the uterus is definitely below the level of the umbilicus.
   (*b*) When the placenta separates from the uterine wall it rises to the level of, or just above the umbilicus. At this stage the uterus is flattened from before backwards.
   (*c*) When the uterus drives the placenta into the vagina it rises still further to the level of an inch or more above the umbilicus, and becomes globular in shape.

   THE LEVEL OF THE FUNDUS OF THE UTERUS CAN BE SEEN DURING THE WHOLE OF THE THIRD STAGE, IN PRACTICALLY EVERY CASE. THERE IS NO NEED TO FEEL FOR WHAT YOU CAN SEE.
2. This round uterus can be pushed from one side of the abdomen to the other, freely and without let or hindrance.
3. The final test is that when the uterus is drawn upwards towards the ensiform cartilage by a hand placed immediately above the pubes, the cord does not shorten at the vulva. It is perfectly clear that if the placenta were still inside the uterus, that the cord being attached to it must of necessity be drawn upwards with it, causing it to appear to shorten. There is one error to be avoided. If the cord be coiled up in the vagina, then,

when the uterus is drawn up, the coil may undo in the vagina and not appear to shorten. Never forget, after tying the cord, to pull out any coil that may exist in the vagina.

These are the main signs. If you happened to be looking at the vulva when the placenta separated, you might see a sudden gush of blood, which is the retro-placental hæmatoma

Fig. 24.—Separation of the placenta. The upper figure shows the level of the fundus before the placenta has separated; the lower shows the level of the fundus after separation. I am indebted to a former colleague of mine, Miss A. B. Smith, M.D., of the Rainy Hospital, Madras, for these photographs.

we talked about. The vulva should remain quite dry after the birth of the baby. If the vulva does remain dry, and there is a sudden gush of blood which soon stops, the odds are that the placenta has separated. It does not mean that the placenta is in the vagina.

When the placenta is in the vagina a swelling can sometimes be seen just above the pubes. The best way to see it is to stoop down until your eyes are on the same level as the abdomen, and look across it. A swelling so seen means either a full bladder, or the separated placenta.

As soon as the cord is cut and the baby removed, place the mother on a clean draw-sheet. In your private practice it is better to use a clean newspaper than a dirty curtain.

Look at the abdomen and observe the level of the fundus of the uterus. Cover the woman with blankets and bath the baby. From time to time you can just peep at the draw-sheet to see that there is no bleeding. No bleeding will occur if the uterus is left severely alone.

At the end of half an hour look for the level of the fundus. If it is well above the level of the umbilicus, you may apply the tests to see whether the placenta has left the uterus. Be ever so gentle. If when you draw the uterus up to the ensiform cartilage the cord does not shorten, then you may be absolutely certain that the placenta has left the uterus. If the level of the fundus of the uterus is not above the umbilicus, cover the patient with blankets, and wait for another half an hour. If the level of the fundus of the uterus is well above the level of the umbilicus, but the cord shortens when the uterus is drawn upwards, cover up the patient and wait.

NEVER ATTEMPT TO EXPRESS THE PLACENTA UNTIL YOU ARE CERTAIN THAT IT HAS LEFT THE UTERUS.

If you follow this rule you will not have post-partum hæmorrhage.

If you break this rule you will succeed in expelling the placenta in nine cases out of ten, but you will fail the tenth time, and be the direct cause of post-partum hæmorrhage.

To Express the Placenta.—Stand on the left-hand side of the patient. With your right hand gently rub the uterus to a contraction. Seize the ligature on the cord with your left hand and hold it above the pubes. Push the uterus downwards and backwards towards the anus with little squeezing jerks. As the placenta appears just bear its weight with the cord, but do not pull. The placenta is born. The membranes are still attached to the lower uterine segment. Hold the placenta by the cord, and with gentle movements draw the uterus upwards as you did when testing whether the placenta had left, so that the membranes may be peeled from the lower part of the uterus. In most cases the membranes will come away in this manner. If they do not,

or if they tear, catch hold of what remains with one or two of the clips you have boiled. Try and get them all away, but do not go into the vagina for them, either with your hand or with the clip.

Now rub up the uterus with both hands to express all clots. Keep on the left side of the patient. Sink your left hand just above the pubes with the palm towards the patient's face. With the right hand, palm towards the patient's feet, seize the fundus of the uterus. The uterus is now between your two hands. By rubbing it up in this manner you avoid driving the uterus down into the pelvis. If you drive it into the pelvis the cervix may come out of the vagina and get infected. Moreover, a tendency to prolapse as well as to retroversion is produced by such treatment. Always rub up the uterus between your two hands.

The Placenta.

Before going any further examine the placenta. Examine the bag of membranes.

If there is a definite hole about the size of a big orange the membranes are " complete ".

If there is not a definite single hole the membranes are " torn ".

If part of the membranes are definitely retained they are " incomplete ".

If most of the membranes are left behind they are " retained ".

Now turn the membranes inside out, and place the placenta in the palm of your hand with the fœtal surface upwards. Make your hand cup-shaped, and see whether there are any cotyledons missing. If any part of the placenta is left behind you must at once inform the doctor. If the membranes are missing either in part or in whole, it does not much matter for they will come away in the lochia. Note, however, that they are missing in case trouble arises during the puerperium. If the membranes are complete the placenta will nearly always be complete. In fact, an incomplete placenta is a very rare thing. Remember the possibility of a succenturiate placenta, which we have talked

about before. See that the placenta is either burned, or put in a safe place.

The Binder.

There is a very strong tradition in medical and lay circles that it is imperative to encase the recently delivered mother in some stout material, a yard and a half long and a yard wide, called a binder.

The binder has no obstetrical value. If the uterus, as a result of a mismanaged labour, does tend to remain flabby there is nobody in this world who is capable of fastening a binder in such a way as to prevent it from filling up with blood. A binder in such a case is a positive danger, for it gives a feeling of false security, while it makes it impossible for the attendant to know how the uterus is behaving.

As a matter of fact the uterus almost invariably behaves perfectly well. Occasionally after a long labour, and after operative interference under anæsthesia, it may require rubbing up at frequent intervals for the first hour. It may be necessary to give such drugs as ergot and pituitrin, but it is never necessary to apply a binder.

A binder therefore is unnecessary. It is not only unnecessary, but is a definite danger in that it is capable of giving a feeling of false security. The worst charge against the binder is that it prevents the woman from sitting upright in bed. Any device that discourages or prevents free and active movement during the early days of the puerperium is strongly to be deprecated.

No binder has been applied in the Leeds Maternity Hospital[1] during the last ten months. The nursing staff, all trained to revere the binder, were at first very frightened, but are now ardent champions of the reformation. It has been conclusively proved that the uterus is well able to take care of itself.

It is necessary, however, to look at the matter from the woman's point of view. She will expect you to put one on, for her mother and grandmothers and great-grandmothers all wore binders. Moreover, there is a strong feeling that the

[1] This was written some months ago, and, so far as I know, the same routine is still in force.

binder helps the woman to return to her normal figure, a very important matter. As a matter of fact, the strong probability is that it hinders rather than helps her to obtain her ideal.

If you find that her mother will put on a binder if you refuse, you must compromise. Put on a narrow "body-belt" just to give the woman a feeling of support. Do not allow it to be tightly applied, and insist on its removal on the third day.

The Pad.

Take a piece of gamgee tissue about a foot long and four inches wide. Scorch it in front of the fire until it becomes a delicate brown on each side. It should be applied immediately after it has been scorched. Do not use wet, so-called antiseptic, pads. They are very uncomfortable and serve no useful purpose.

As soon as the placenta is born, and found to be complete, rub up the uterus and expel all blood clots. If you are leaving the woman in her house, it is just as well to give her a big teaspoonful of ergot. Ergot is absolutely unnecessary in the case of patients remaining under supervision in a nursing home or hospital. Only one dose should be given, as it tends to interfere with drainage.

Wash all blood from the thighs and external genitals, using swabs wrung out of biniodide of mercury solution.

Open the vagina with two swabs and see whether there is any tear. Dry the inside of the thighs and the buttocks with a clean towel and place the patient on a draw-sheet.

Scorch and apply the pad.

Do not apply a binder if you can help it, but keep the pad in place with a tape, passed round the body.

If there is any bleeding which persists, or if the uterus keeps filling with blood, it is post-partum hæmorrhage. Do not wait until the woman becomes very bad before sending for the doctor. If there is any tear of the perineum or vagina, it must be stitched. If it occurs in the day-time let the doctor know and he will arrange when he can come. Do not wake him up at night, the tear will heal equally well if stitched any time within twenty-four hours

after the birth of the child. The things required will be boiling water and swabs.

Some other afternoon we will discuss what has to be done in the first few hours after the birth of the child. Let us just run over the main points we have discussed.

1. Do not let the woman remain too long in the second stage ; it may spoil the third stage.
2. After the cord is cut, observe the level of the fundus, and see that there is no coil of cord in the vagina.
3. Cover the woman up and leave her severely alone for thirty minutes. Just peep at the draw-sheet occasionally, to see that there is no bleeding.
4. If at the end of half an hour the level of the fundus of the uterus is well above the umbilicus, see whether the placenta has left the uterus. Be very gentle. If you are not certain that the placenta is in the vagina, cover the woman up and wait another quarter of an hour.
5. As soon as you are satisfied that the placenta is in the vagina, rub up the uterus until it contracts well, and with gentle squeezing movements express the placenta. " Breathe it out."

If only the uterus is left severely alone the placenta will separate satisfactorily. If there is any persistent bleeding, however slight the trickle, it is post-partum hæmorrhage.

Milton, in his wonderful poem, speaking of his blindness, laments the fact that owing to his affliction he is less able to serve his Master. He realized in the end that God has thousands who can post o'er land and ocean without rest, and requires some who can only " stand and waite ".

In no branch of Medicine is the capacity for " masterly inactivity " more needed than in midwifery. No part of midwifery requires more patience, neither does any part reward patience more than the third stage.

" They also serve who only stand and waite."

CHAPTER XV

THE PUERPERIUM OR LYING-IN

Then said Umra-Singh: "Thou miserable root-eater, since the Creation every woman has sacrificed herself for another, or else she was not a woman, for this is the nature of them all".

The Descent of the Sun.

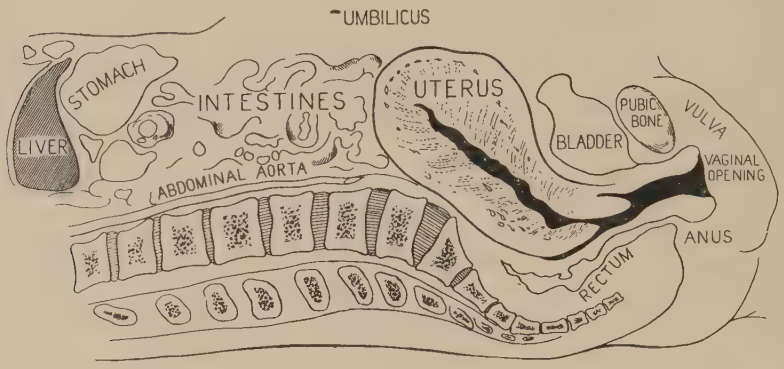
By the term Puerperium is meant the period of time that elapses from the birth of the placenta, until the uterus has returned to its normal size. As a matter of fact, the uterus never quite returns to its virgin size, and an arbitrary period of six weeks is usually fixed as the duration of the puerperium.

There are two main ideas to grasp. The first is that in the uterus there is a wound, and that wound is just as capable of becoming septic as is a wound in any other part of the body. The second is, that the contents of the mother's pelvis have to return to their normal condition. The uterus, immediately after labour, is very large and bulky, and weighs about $1\frac{1}{4}$ lbs. The non-pregnant uterus weighs about 4 ozs. That means to say that a pound of uterus has to be absorbed into the blood stream, and excreted in the urine. This is called "Involution of the Uterus". Moreover, the relaxed vagina and pelvic ligaments have to be "tightened up". The mother is not a sick woman, but a tired woman. She has had a long trying nine months, which ended in the severe ordeal of labour. A tired woman, however, should not run a temperature, neither should she in any sense be ill. The puerperal woman differs from a tired woman only because she has a wound, and because a certain amount of extra work is thrown upon her kidneys.

Just as there are two main ideas to grasp, so there are two main points to attend to in the treatment.

1. Attention to the bowels.
2. Drainage.

1. *Attention to the Bowels.*—Although the woman may have taken some laxative every day during her pregnancy, it is almost impossible to believe that the bulky uterus allowed her bowels to be well emptied. Constipation itself can and undoubtedly does cause a rise of temperature, and



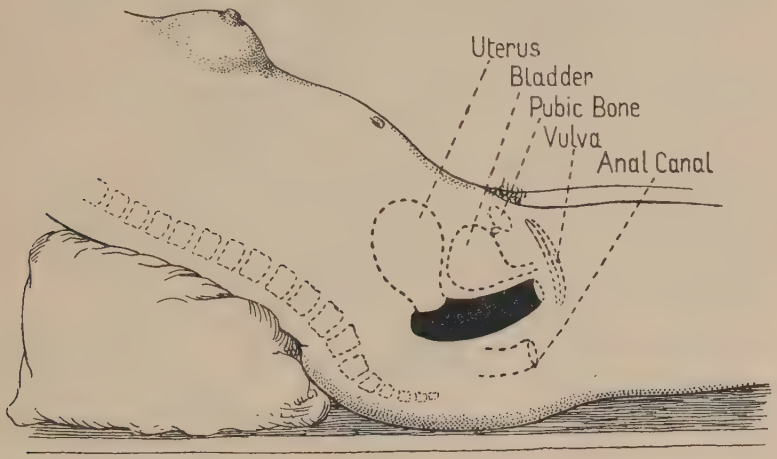
A

Fig. 25 (A) shows the sagittal section of the pelvis and abdomen of a woman, made in the mid-line of the body. The woman died, almost certainly, as the result of a puerperal infection. The tracing was made on glass, and the relative size and slope of the vagina are accurately portrayed.

there can be no doubt that it acts as an ally to sepsis, even as night is an ally to murder. A good purge, preferably two ounces of castor oil, should be given the morning after delivery, and a suitable aperient should be given every subsequent day so long as the patient remains in bed.

2. *Drainage.*—The vagina slopes downwards and forwards. Consequently, when the mother is lying in bed the posterior fornix is at a lower level than the outlet of the vagina. The lochia collects in this fornix, and provides excellent food for micro-organisms. These organisms grow, and give the woman what is termed a sapræmia. Raising the upper end

of the bed does not allow of free drainage, so the patient must be made, at frequent intervals, to sit upright in bed for a few minutes even during the first day. Moreover, the contraction of the muscles, in the effort of sitting up, squeezes the lochia out of the uterus and the vagina. If the perineum has been lacerated and stitched sitting up will be painful. Nevertheless, it will be no less painful on the second than on the first day, and it will be found more difficult to make her sit up on every succeeding day. I



B

FIG. 25 (B) shows that the slope of the vagina is very little altered when the patient is propped up in bed on pillows. The posterior fornix is still at a lower level than the entrance into the vagina.

cannot be too emphatic on this point. The nurse must be firm and sympathetic, and with patience encourage her patient to work out her own salvation. With some women it may even be necessary to get them right out of bed, on to a chair, while the bed is being made. With others it is advisable to let them sit for a few minutes with their legs over the edge of the bed. You have all seen for yourselves that this is possible, and that the morbidity in the hospital is very low.

Now that we have discussed the really important points we will discuss the treatment in greater detail.

Immediately the placenta is away the patient should be washed up and a pad applied. The uterus should be well rubbed up two or three times during the first hour after

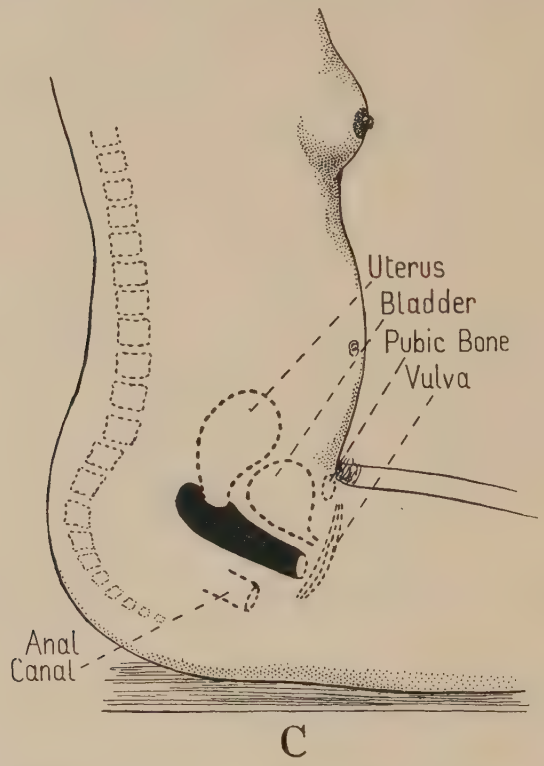


Fig. 25 (C) shows the slope of the vagina when the patient is sitting up in bed.

(I am indebted to my colleague, Dr. Congdon, Professor of Anatomy, for his kindness in making the section of one of the subjects in his Department, so that I could make the tracing on glass shown in Illustration No. 25 (A). The woman was brought into the Anatomical Department, and it was not found possible to obtain any history of the illness leading to her death.)

the birth of the placenta. Allow the mother to have a cup of tea as soon as she fancies it.

Before leaving the patient encourage her to empty her bladder. She may sit up in bed, and get into any position she wishes, but a catheter should never be passed on a

multipara. If all the various plans used by nurses fail, a cold compress over the pubes often proves helpful. In hospital, on the very rare occasions when the patient cannot pass her water, we spray ethyl chloride over the supra-pubic region. If you are dealing with a nervous patient, go out of the room and see that she is left alone. If, at the end of twelve hours, a primipara has not succeeded in passing any urine pass a catheter. Never pass a catheter more than once. If necessary the patient may be allowed to get out of bed, but she will always succeed in passing her water if she is given plenty of time and encouragement. When there has been a lot of operative interference, an exception may have to be made to this rule, but the doctor attending the case will, of course, leave his instructions.

The bowels should be opened on the first day after delivery. Give the oil as soon as the mother awakens in the morning. It should act in about four hours. After the bowels have been opened any light diet may be allowed. If you are dealing with a fussy patient you will gain much "kudos" by working out some special diet, and gradually increasing it from a lightly-boiled egg, through the stages of mince, white flesh and mutton to a full diet. Any diet short of beef steak or greasy bacon may be allowed to a normal patient. Give some suitable purgative, in liquid or pill form, every day at such a time that it will act at a convenient hour. You will have to find out the peculiarities of each patient, but however regular she may be, and however easily her bowels may be moved, she must have some aperient every day.

For the first six days the uterus should be well rubbed up morning and evening, so that all clots are expressed. "After pains" are caused by clots in the uterus, and if they are expressed you will not have any patients complaining of this troublesome condition. If, in spite of this treatment, they do occur, give a dose of ergot (one teaspoonful). Do not, however, give ergot if you can help it, for it probably tends to close the internal os uteri, and so prevents drainage.

The Vulval Toilet.

The neighbourhood of the vulva becomes soiled by fæces, urine and lochia. The advantages of shaving the genital area before labour are just as evident during the puerperium, as during the birth of the child. It has been proved that if little particles of Indian ink are placed in the vagina of a non-pregnant woman they may travel up into the cervix and through the uterus and tubes into the abdomen. If that is so, it is clear that we must be careful to keep the vulva free from gross dirt, and so prevent the harmful organisms from getting into the vagina, and climbing into the uterus and infecting the placental site—the wound we have discussed.

The vulva should be washed morning and evening. It is not necessary to wash the vulva every time the bowels are opened, for the parts should be kept as dry as possible. The patient should be placed on a douche-pan. The chest and abdomen are covered with the blankets, while the legs and most of the thighs are covered with the sheets. Do not forget to warm the douche-pan. In your practice you will often have to be content with a chamber.

Put on a pair of well-fitting, unpunctured, dry rubber gloves. Place the sterile swabs in a basin of weak biniodide by the side of the bed, together with a clean bar of soap on a sterile soap tray, and a small jug of weak biniodide solution. See that all the solutions are comfortably warm. Now that everything is ready go and wash your gloved hands with soap and water and a scrubbing brush—just as if you were washing your own skin. After thoroughly washing them, soak them in antiseptic and you are ready. Take some swabs—partially squeeze them—and rub them on a cake of soap. Hold the " soaped " swab in a pair of forceps and wash the soiled area in the following way. With the first swab clean the inside of the right thigh, with the second the inside of the left thigh, and with the third the area above the pubes. Clean the outside territory before cleaning the vulva itself. Always swab from before backwards, so that fæcal soil is not carried from the anus to the vulva. Now wash both sides of the vulva, but do not open the vulval orifice. When the parts are clean, pour the weak antiseptic

from the jug well over them but do not open the vulval orifice. Now dry the parts with a clean towel, but do not touch the actual vulva. Scorch the pad in front of the fire before it is applied. It is quite clear that you will not be able to carry out this technique in the poor houses in which many of you will be called upon to work.

All cakes of soap are sterile if you will wash off the dirty outside layer.

There is no reason why you should not use either a pair of gloves or a pair of forceps to swab the patient, even in a district tenement house.

A tumbler will serve to contain the weak mercury solution to pour over the vulva.

A clean petticoat will do to dry the thighs ; the towel is sure to be dirty.

We have spent rather a long time considering a subject about which you have all acquired first-hand knowledge. The subject, however, is so important that it has been time well spent. There are still a few minor points to consider. If a perineum has been stitched make no difference in its treatment. Many a promising perineum has been ruined by excessive care and attention. Keep the stitches as dry as possible. It is quite good practice, although somewhat painful, to paint the torn area with spirit. If, as a result of the medicine, the bowels act at frequent intervals, do not subject the mother to frequent " wash ups ". When the bowels have ceased to act for a while, then carry out the necessary toilet. Be generous with the pads. The more pads the less soil. The number that will be necessary will of course vary considerably with the patient. Burn all soiled pads. Thoroughly cleanse the douche-pan after it is used, and leave it to soak for a while in an antiseptic solution.

The Uterus.

Immediately after the birth of the placenta the level of the fundus of the uterus lies about half an inch below the umbilicus. The uterus is globular in shape and firm to the touch. Contractions can be felt at infrequent intervals, although the uterus should never become flabby. A dose of ergot was given immediately the placenta was born. It is

now four hours since the baby was born—the mother has passed her urine, and the uterus has been rubbed up four times in the manner described in Chapter XIV. It should be rubbed up morning and evening, just before the vulval toilet, for the first six days of the puerperium.

The level of the fundus should come nearer to the pubes every day. The actual distance that it descends each day does not matter much—it is usually about half an inch. The thing that does matter is that it goes down gradually and evenly, and that by the end of ten days it is only barely palpable. It is a good thing to chart the descent of the uterus—it should plot out a straight line. It is only on very rare occasions that the uterus fails to involute properly. If the uterus appears to rise in the abdomen, always suspect a full bladder. If the level of the fundus descends unevenly or remains stationary, expect a temperature . . . and you will sometimes be disappointed !

The Lochia.

In olden days people thought that the uterus involuted, or got smaller, as the result of putrefactive changes—and that the lochia really represented "decayed" uterus. We know now that the lochia consists of blood, or serum, tags of membrane and the remains of the decidua. For the first two or three days it is red, and is given the Latin word for red—lochia rubra. For the next two or three days the discharge is chiefly serum, or altered blood, brown in colour, and is called lochia serosa. Finally there is very little blood or serum in the discharge—and it is called lochia alba—alba being the Latin word for white.

The amount of lochia varies very much with different women. Some hardly stain their pads after the first twenty-four hours, while others require several pads in the twenty-four hours. With some patients the lochia ceases entirely by the tenth day, with others the lochia may persist for a month and be of a distinctly red colour. If the membranes have been retained they will be seen to come away in fragments with the lochia. Even if all the membranes have been retained they will all come away, and in the majority of cases, without any rise of temperature. This does not mean

that every care should not be taken at the birth of the placenta to see that the membranes are delivered intact.

The lochia has a warm sickly sort of smell, but although heavy it should not be offensive. Inspect every pad—smell every pad—burn every pad, except the offensive ones, which should be kept in a covered vessel and shown to the doctor. The lochia may be very offensive, and sometimes it is impossible to distinguish the discharge from pus. Sometimes there is a recto-vaginal fistula, and fæces mix with the lochia. Whenever the lochia is offensive sit the patient up, and make her sit up at frequent intervals, and give her two ounces of castor-oil. There is no mystery surrounding the lochia. If the confinement has been properly attended, and the puerperium properly managed, the lochia will remain normal as will the temperature. If the labour has been shockingly mishandled, and all the laws of the puerperium disobeyed, the lochia may yet remain normal, and the temperature never rise a degree. But this is the point, if one little error has been made, if one fit of laziness should prompt a nurse to be careless in her duties on one day—then trouble may arise. Finally, the lochia may be offensive without any rise of temperature, or may remain normal in quantity, colour, and smell, while the patient is dying from acute sepsis.

Breasts.

The care of the breasts ought to commence long before the baby is born. During the last few weeks of the pregnancy the mother ought, in her daily bath, thoroughly to soap and wash her nipples. She ought then to draw the nipples out gently so that they may be sufficiently prominent for the infant to suckle. After thoroughly drying them she should apply eau-de-cologne, or whisky, in order to harden the epithelium.

As you know, fluid may be expressed from the breasts when the patient has only been pregnant some few weeks. It is called colostrum. At the birth of the child it is a thin fluid rather resembling butter-milk in appearance. This colostrum probably acts as a mild laxative to the child.

The milk does not as a rule make its appearance until the third day. Very often the breasts then become engorged, hard, and tender. The veins stand out prominently and the whole breast has a " knotty " feel. There is, however, no such thing as " milk fever ". In the past, and that not a very far distant past, this engorgement of the breasts was often associated with a rise in temperature, which was considered quite unavoidable. We now know that the fever was due to a mild infection which does not occur if the mother sits up, and is purged.

If the breasts are very painful, which is not often the case, they may be relieved by fomentations and a tight binder, but the breast-pump should not be used. The baby is put to the breast four times on the first and second days, and at three-hourly intervals from the third day onwards.

Before the baby is put to the breast the nipple should be cleaned with swabs out of boracic solution. The nipple should be similarly cleaned immediately after the baby has finished suckling. In some places a mixture of glycerine and borax is painted on the nipple before the baby is put to the breast. The baby certainly likes the glycerine, but it is sticky, and tends to remain on the breast and become dirty. While the baby is at the breast he should be kept awake and at his work, and the nipple should not be allowed to touch the bedclothes. If it should become contaminated, it should be washed again before the baby is allowed to recommence feeding. The mother should wear a clean cloth to protect her breasts from her clothing. Milk tends to escape from the breast and collects round the nipple. It undergoes fermentation just like ordinary milk, and it is this fermented milk which accounts for a large number of green stools.

The mother occasionally complains of tender lumps in one or both arm-pits. She will tell you that they vary in size from time to time. These lumps are not swollen glands, but portions of breast tissue which are separate from the main body of the breast. They become smaller after the baby has suckled the breast, so it is evident that these little islands of tissue actually secrete milk.

The Temperature.

The temperature should be taken twice daily, and should never rise beyond 98·4° F. The usual temperature is some point between 97° and 98° F.

It is not necessary to take it after the tenth day of the puerperium, unless there has been some abnormality.

The Pulse Rate.

The pulse rate is usually between 70 and 80 per minute. It is stated that the rate is unusually slow in puerperal women. If, however, the mother is encouraged to sit up in bed and move about freely, the pulse rate is normal.

Sleep.

The nursing mother usually sleeps well, providing she is not kept awake by the baby. She should feed the infant before she goes to sleep, at about 10 or 11 P.M. The baby should not be fed again until between 5 A.M. and 6 A.M. If this rule is obeyed, in the spirit and in the letter, from the very first day, the child will soon learn manners, and the mother and the rest of the family will be allowed to sleep. Naturally it is a great advantage to the mother if the infant is removed to another room for the night.

A large number of the mothers that you will confine will have no other room into which the child can be taken.

The mother must have sleep, and you must give her some suitable draught if necessary. Sleeplessness is associated with infection, and often precedes mania. You will, however, be called upon to administer a sleeping draught only at very rare intervals.

Getting Up.

Over a hundred years ago White of Manchester advocated getting the woman out of bed on the third day after her delivery. In all probability such treatment would do no harm to the mother. In fact, from the point of view of drainage it would be excellent. Primitive women attend to their ordinary duties immediately after giving birth to their children.

Each woman should be treated as an individual. Speaking generally, it is advisable to keep her in bed for at least a week, and preferably a fortnight. She has had a trying time for nine months, and she deserves a rest. If you do not keep her in bed she will immediately get into the whirl of household duties. On the other hand, if the patient is a strong, healthy woman who insists on getting up and going about, it will do her no harm, not even on the second day.

In the Rotunda Hospital the patients get up on the sixth evening, and are allowed home on the eighth morning after their confinement. As a very high percentage of the women living on the north side of the river are confined by the hospital staff and attend the gynæcological department when necessary, it is possible to state that a short stay in bed during the puerperium is not a cause of prolapse or of any form of pelvic trouble—anyhow in Ireland !

The lochia should have ceased by the end of three weeks, and the mother should be allowed gradually to resume her normal life. The menstrual periods do not usually return after the first pregnancy until the baby is five or six months old. After any subsequent pregnancy menstruation may recommence eight weeks after the confinement. While it is true that a nursing mother is not very likely to become pregnant, it is not true to say that she cannot become pregnant. It is not at all an uncommon thing for a woman who suckles her child to become pregnant again before menstruation recommences.

The baby should be weaned when he is about nine months old.

In conclusion, we must recognise that the duties of a mother, especially towards her first child, are very onerous. It is your privilege to encourage her to take suitable food so that she may be able to suckle her child, to leave her at the end of a fortnight with a clean baby, and to assure her that the child, while deserving and needing love and care, should not be allowed to hold the household to ransom and make her life intolerable.

CHAPTER XVI

THE BABY

Our birth is but a sleep and a forgetting ;
The soul that rises with us, our life's star,
Hath had elsewhere its setting,
And cometh from afar ;
Not in entire forgetfulness,
And not in utter nakedness,
But trailing clouds of glory do we come,
From God, who is our home :
Heaven lies about us in our infancy !
" Intimations of Immortality."—WORDSWORTH.

We have now to consider the baby, and there is no need to be ashamed of a little sentiment. We are so apt to consider the birth of the child as the successful termination of a case, that we forget to wonder at God's masterpiece of Creation.

Cæsar was a baby, Newton and Nelson were babies, and all great men have shivered naked and bloodstained attached to a cord between their mothers' thighs. Watch the infant slipping about on a mackintosh. Already he is showing his individuality. He slips and slides and slithers about—he clenches his fist and kicks the mother that has given him birth. Listen to the cry—the first cry he has uttered. Every baby has a cry that is distinct from that of every other baby, and soon the mother will recognise him by his cry.

That infant has grown from one single cell that was far too small for you to see. That single cell was formed by the joining together of two minute cells, one from the mother and one from the father. In those two tiny cells were concentrated life, and in the life many of the virtues and many of the vices of the parents. All the advantages and

disadvantages of heredity were sealed and settled when those tiny cells embraced each other for life.

That tiny cell divided and divided until millions of cells were formed, and a baby was fashioned. The mother has carried her baby in her own body, and has nourished it with her life blood for nine long months.

Often she has in fancy nursed her yet unborn child, and has cooed and talked to the infant stirring in her womb. With love she has fashioned the little garments, and has weighed a hundred names.

In pain and shame she has brought forth her offspring—flesh of her flesh and bone of her bone—and you have witnessed the wonder, and have helped a mother in her sore travail.

Rejoice with her in her joy.

It is always taught that the baby should not be separated from the mother until the cord has stopped beating, otherwise the infant will lose two ounces of blood. This statement has been copied from one text-book to another and may be true.

In order to see whether the cord has stopped beating, rinse your hands thoroughly in antiseptic and take the cord between the sides of any two fingers. Do not use the tips of your fingers, or a finger and thumb, otherwise you may feel your own pulse. The pulsation of the cord usually stops within five minutes of the birth of the child.

Place a ligature about two inches from the child's abdomen, choosing a thin spot in the cord. Place another ligature three inches nearer to the placenta. Cut the cord between the two ligatures as close to the child's abdomen as is convenient. Always cut towards the palm of your hand, otherwise you may amputate a finger. Examine the end of the cord with a swab, and see that it is not bleeding. Wrap up the child in a warm blanket, and put in a warm, safe and convenient place, not too near the fire.

Artificial Resuscitation.

The child should cry soon after it is born. If it does not do so, lift it gently by the heels and rub its back. Occasionally the child is born in asphyxia after a normal delivery. It

will not start to breathe—although its heart is beating. In such a case the cord must be tied at once. Do not wait until it stops beating.

To lift a baby by its heels, pass the index finger of the right hand between the two ankles. Grasp the one foot with the thumb, and the other foot with the remaining three fingers. This is a perfectly safe way of holding a baby unless it is premature or has deformed feet.

There are two types of asphyxia—White and Blue.

White asphyxia is a more serious condition than blue asphyxia. The child is of a dirty white colour—the lips being as white as the rest of the face. It is limp—and the limbs flop about as it is carried.

In blue asphyxia the baby is of a dark blue colour, and the lips are bluish-black. The baby is not as a rule very limp. All white asphyxia babies become blue before they " come round ".

The condition is of course much more commonly met with in forceps and breech deliveries.

The treatment is the same for both conditions.

Treatment.

1. Do not waste time trying to feel whether the heart is beating. Always assume that every child is alive until you have proved that it is dead.

2. Put the baby into a hot bath (Temp. 104° Fahrenheit). The water should feel comfortably hot to the bare elbows.

3. Quickly remove as much mucus as possible from the child's throat, using little strips of linen. A Carton's mucus catheter is invaluable for this purpose.

4. Firmly squeeze the chest at regular intervals, using your right hand.

5. Every now and again :

   (*a*) Lift the child out of the bath by the heels.

   (*b*) Rub the child smartly down the back—from the breech towards the head.

   (*c*) Smack the child.

   (*d*) You will probably find that this rubbing in the upside down position will allow you to suck more mucus out of the child's throat.

6. You may splash a little cold water on the child's chest, and put some brandy in its mouth on the tip of your finger.

Do not forget to keep up the regular squeezing of the child's chest, and again let me warn you not to waste time feeling for the heart-beats.

There are many different methods of resuscitating a baby. Use whichever method you have seen used, but the one described is as good as any, and simpler than most.

If the heart is beating, the child should come round.

The three things necessary, nay four, are :

1. A clear air way, obtained by removing mucus.
2. Heat—the hot bath.
3. Cold—the cold air.
4. Pain—the smacking.

There is one special type of baby that we must mention, that is the " morphia baby ". If the infant is born within six hours of the mother having had morphia, it may be sleepy. It comes partly round, starts to breathe, and when left tends to breathe very slowly. It remains somewhat limp, does not cry, and is rather like a baby in white asphyxia. There is no object in keeping such an infant in the bath very long. Take it out, place it on a warm towel placed on a bed or table near the fire. Lift first one and then the other end of the towel, so that the baby rolls from its left to its right side —and then back again. This can be done conveniently on the lap, and is termed the " Grandmother's method of Resuscitation ".

The Bath.

It would probably be good practice not to bath the new born child until it is ten days old, but to cleanse it with olive-oil in front of the fire. This method cannot be adopted in hospitals, as it would obviously be more expensive. In any case it is advisable to remove the vernix caseosa, that is the " lard " on the skin, with olive-oil. The temperature of the bath water should be 100° Fahrenheit—that is water that feels comfortably warm to the bare elbows.

Use some toilet soap such as Pears or Castile soap. Very

little, if any, soap is required for the first few baths. A separate cake should be reserved for each baby.

The head should always be held above the water by a hand placed under the neck.

The infant may be immersed in its first bath. In succeeding baths the child should be held over the water (or placed in a bath in which there is very little water), but not immersed until the cord separates. Leave the dressing on the cord and apply more powder before commencing bathing operations. The cord will thus be protected from splashes of water. After the bath is finished the old dressing should be thrown into the fire and a fresh covering applied.

Always be as quick and as gentle as possible. The skin is delicate, and the child loses a lot of heat every time it is bathed. Keep near the fire, but do not let the head become too warm. Use a smooth warm towel and "dab" the infant dry.

When the bath is finished wipe the eyelids and gently wipe out the ears and the nostrils with little pledgets of cotton wool, twisted to a point and moistened in clean, warm water.

After the bath is finished let the child rest for a while. Never bath a baby immediately after a feed.

In some institutions the child is always immersed in the water. I do not think this method is so good as the one described above. If the cord is allowed to get wet, it should be thoroughly dried with spirit before being powdered.

In institutions where a nurse has to bath several babies one after the other special precautions must be taken.

1. She must wash her hands between each bath.
2. The bath water must be changed for each baby, and the bath disinfected with carbolic (one in twenty solution) at least once daily.
3. Fresh warm water must be used for cleaning the eyelids and nostrils of each baby.
4. The powder must be shaken out of a tin, straight on to the cord.

The Cord.

After the first bath see that the end of the cord is free from blood. If necessary tie it again closer to the abdomen,

using a sterile ligature. Cover the cord generously with a powder consisting of one part of zinc, two parts of boracic and ten parts of starch. See that the starch is not lumpy. Some people prefer to use plain starch. Do not use fuller's earth. Wrap up the cord and the powder with a piece of linen or lint, well scorched in front of the fire and containing a slit into which the cord may be passed. Keep the dressing in place with a thin, narrow piece of material, just long enough to pass once round the child's abdomen. Sew the two ends together. There is no need for a great piece of thick flannel, for the binder is merely a bandage and should be discarded as soon as the cord comes off.

The cord comes off on about the fifth day. Occasionally it does not separate until the tenth or even the twelfth day. Keep it very dry with spirit and powder.

Sometimes the cord is very thick and tends to be soft and mushy. When it does separate it may leave a wet stump. Paint the stump with spirit or iodine or a 2 per cent solution of picric acid in spirit, and use plenty of powder.

Eyes.

As soon as the head is born the eyes should be wiped, and the face cleansed. There is no need to prepare separate swabs in boracic solution, for the biniodide swabs do excellently for the eyes. Immediately after the infant is bathed for the first time, put a drop of 1 per cent silver nitrate solution in each of its eyes.

1. Be sure you get your solution from a good chemist. I have seen a baby made completely blind by using too strong a solution.
2. Be sure that the drop actually gets into the eye. If you have much difficulty, make a pool of the solution between the inner corner of the eye and the bridge of the nose, and wait until you are satisfied that a drop has got into the eye.
3. Always put in the drops, whatever the social position of the mother.

There is occasionally a slight reaction after the silver nitrate has been used. The eyelids may swell and become

red, so that it is difficult to open the eyes, or there may be a discharge of a thin, yellow, sticky fluid from the eyes, which

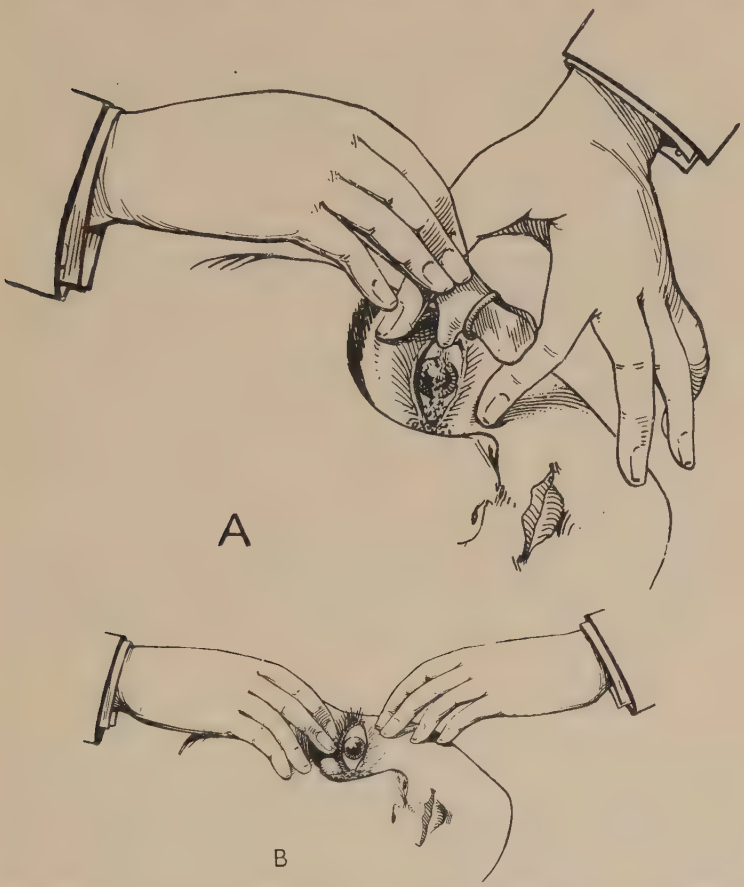


FIG. 26.—Illustration showing the method of putting drops in a baby's eyes. The baby should lie on the nurse's lap and the eyelids should be separated with the thumb and first finger, as shown in figure (A). If it is found difficult to be sure that the drops actually enter the eye, make a pool of the solution between the bridge of the nose and the inner angle of the eye, and use both hands to separate the eyelids as shown in figure (B). By turning the baby's head the solution may be made to flow from the pool into the eye. The face is drawn large in order to make the illustration clearer.

gums the lids together. Wash such eyes with plain boracic, or saline solution, and if they are not better within twenty-

four hours inform the doctor. We will discuss the serious condition known as ophthalmia neonatorum in the chapter on venereal diseases.

All I want to say now is, that if you are faithful with the silver nitrate drops, you will have no cases of ophthalmia. An infection at birth, which you can prevent in your cases, is responsible for a very high percentage of the inmates of our blind asylums.

Meconium.

The infant passes meconium for the first few days. When being passed it looks almost black, but when spread on the napkin it is seen to be of a greenish-brown colour. The infant usually passes meconium soon after it is born. If it does not do so, see that the anus is present, and that it admits the tip of the little finger. If, however, the baby is born breech first, it may not pass meconium for more than twenty-four hours, as the lower bowel may empty itself before the birth is completed.

After the fourth day the stools should be passed three or four times daily, be partly formed and bright yellow in colour. If meconium is still being passed on the fifth day, it is good practice to give the child a teaspoonful of castor-oil.

The Napkins.

The napkins should be made of a soft, non-irritating, warm material. They should be changed as often as is necessary. A wet napkin makes a baby uncomfortable, and is one of the causes of sore buttocks. When wiping away soil be very gentle. Meconium is very sticky, and it is necessary to smear the baby's parts with a little vaseline until the yellow stools commence. Vaseline is then unnecessary, and plenty of powder should take its place. Keep the vaseline in a clean pot. In hospital it is absolutely necessary to use vaseline out of sterile tubes. Wash your hands after changing a baby, and before touching another.

Napkins may be sent to the laundry, but in hospital practice they must be boiled before being used again. It is frightfully easy to infect one baby with a sundry which has been used on another baby, unless it has been boiled. In

private houses the napkins may be washed out and used again when dry.

Nails.

The finger nails should reach well over the ends of the fingers, if the child is not premature. As a matter of fact, the nails are often quite long in a definitely premature child. There is a curious superstition that it is dangerous to cut a baby's nails. This is sheer nonsense, and they should be cut as soon as possible and kept short, otherwise the infant will scratch its face and cause abrasions that may give trouble. Long finger nails are one of the indirect causes of pemphigus.

The toe nails are a far more reliable guide to the duration of the pregnancy. In a full term child they just reach to the end of the toes, and they are always short in premature babies.

Clothes.

It is a curious fact that while mothers vie with each other in making their own dresses lower and their skirts shorter, they insist on dressing their babies in clothes sufficient for three infants.

The baby should be dressed in the following manner:

1. A soft, non-irritating woollen vest reaching to the thighs.
2. A simple flannel sleeveless garment, reaching to the ankles and opening in front.
3. A simple frock reaching to the toes.
4. A napkin, which should not be pinned, but tucked in on either side.

All christening garments, twice the length of the unfortunate infant, and gaudy bonnets with irritating ribbons should be reserved for the ceremony, and then consigned to the flames.

The baby loves to stretch himself and kick his toes and wave his fists, and should be allowed full freedom.

The infant should be put in a cot and laid on a sheet with a mackintosh underneath. He should be covered with blankets which should not be allowed to come too close to

his face. You have read that " The hand which rocks the cradle rules the world ", but we know now that rocking the cradle spoils the child.

Fresh air and sunshine should be allowed in full doses. It is the over-clothed and under-aired baby that catches broncho-pneumonia. You must, however, protect the infant from the full glare of the sun by suitable screening, and keep him warm on a cold day with hot-water bottles.

Urine.

The urine of a healthy child hardly stains the napkin. If the napkins are stained give the baby plenty of water. The baby usually passes urine soon after it is born. I have never yet seen a baby that could not pass urine. It very often empties the bladder into the bath, when the nurse is not looking. Occasionally the bladder opens on to the abdominal wall, or some other malformation may be present. A tight foreskin may be the cause of a napkin that is constantly wet, a baby that is constantly cross, and thighs and buttocks that are red and sore. In such a case circumcision should be considered. The doctor may prefer to stretch the foreskin with a pair of forceps.

A Clean Baby.

Before putting the baby into the bath, hold it over a small warmed chamber. The baby should also be held over the chamber before each feed. Those who have not tried this method will be astounded at the ability of a baby to learn manners.

Disposition.

Babies should be good ! If they are not in pain, and if they are not hungry or " wet ", they should not and do not cry. A baby may be in pain because it has a " stomach ache ", or because a pin is pricking it.

It is said that a family were starving. The husband had tried to get work, but day after day he failed. At last the wife went out to do some washing, while the husband stayed at home and looked after the baby. The baby cried—and continued to cry. In desperation he undressed the baby,

found a pin was pricking it, and sat down and invented the safety pin. A wet napkin is very uncomfortable—and is a common cause of crying. On the other hand, always be suspicious of a baby who lies quiet and never cries. An ill baby is usually a quiet baby, unless it is in pain. Finally rest assured that the baby will master the family if the mother fails to master the baby.

Temperature.

The temperature of a newly-born infant is not very stable. The thermometer registers somewhere about 100° F. during the first week of life.

To take the temperature of a baby—smear some soap round the bulb of the thermometer and gently insert it for about half an inch into the baby's rectum. A fairly accurate result is obtained by placing the thermometer in the infant's groin. A subnormal temperature is just as serious as a raised temperature.

CHAPTER XVII

INFANT FEEDING

Delicately poised,
Exquisitely curved,
Chalice of delight,
Fount of Infant might.—Anon.

In some places in America a sample of every mother's milk is sent to the chemist to be analysed. If the milk is not up to the standard that he requires, it is considered unsuitable for the baby. We, in this country, are sufficiently old-fashioned to believe that the mother's milk is always the best food for the child. When the child does not thrive it means that there is not enough milk in the breast, not that it is unsuitable in quality. If a woman practising as a midwife proposes to put a baby on an artificial food, she must notify the local supervising authority on the prescribed form.

The baby, therefore, should always be fed on the breast except in the following conditions :

1. When the mother has no supply of milk.
2. When the mother is profoundly ill.
3. When the mother is suffering from puerperal insanity.

1. Occasionally, only very occasionally, the breasts may not secrete a single drop of milk. I have only seen one such case. The mother had no milk at all either for her first or second child. The most careful and prolonged efforts furnished a drop or two of blood, but no milk. Very frequently the supply of milk is not sufficient for the child, but that is a subject we will discuss a little later on.

2. The mother may be profoundly ill because of sepsis, or because of tuberculosis or some other constitutional disease. In such conditions it is unwise to use up her strength in supplying milk. Should she, however, recover in the course of a few days, every effort should be made to restart the flow of milk. Mastitis is not a sufficient reason to keep the child off the affected breast, but a nipple shield should be used.

3. When the mother is suffering from puerperal insanity the child must be kept away from her, otherwise she might throw it out of the window. In a small percentage of cases this insanity is very transient, and suckling may be recommended as soon as the symptoms have disappeared.

The infant should be put to the breast four times on each of the first two days, and commence regular feeding on the third day. The supply of milk does not make its appearance until about the third day, when the breasts often become hard, knobby, painful and engorged. The pain associated with the engorged breasts may be relieved by hot fomentations and a tight binder. Gentle massage with warm olive oil very often works like a charm in severe cases.

I think I hear someone asking, "If there is no milk until the third day, what is the good of putting the baby to the breast?"

There are four reasons :

1. The baby has got to learn to suckle. It is well that he should have some practice, so that he can draw off the milk when it arrives, and so help to relieve the engorgement which may be present.
2. Suckling the breasts hastens the onset of the supply of milk.
3. Suckling the breasts causes contractions of the uterus, and so helps to expel the blood clots and lochia from the uterus. I met one case where the woman suffered agonies when she suckled her baby because of the violence of the uterine contractions. I finally succeeded in stopping the pain associated with feeding her child by a mustard plaster placed over her lumbar spines.
4. The colostrum acts as a mild laxative.

Before and after putting the child to the breast the nipple should be carefully bathed with boracic lotion. This is done for two reasons, the one in the interests of the mother and the other in the interests of the child.

Mastitis, or inflammation of the breasts, is nearly always the result of an infection from the nipple. The skin, or epithelium, covering the nipple gets sodden by the child's saliva, and is easily rubbed off by the vigorous action of suckling. The result is a crack. Through this crack germs travel into the breast and cause an inflammation. Now if the milk which frequently escapes from the breast is allowed to remain in the region of the nipple long, it will ferment, just as ordinary milk ferments if kept exposed to the air at body temperature. Organisms cause the fermentation, and organisms grow in the fermenting fluid. These organisms are then rubbed into the breast by the infant. Moreover, the infant is very liable to get green stools, and possibly diarrhœa and vomiting through swallowing this fermenting milk. The breasts, then, must be carefully bathed before and after each feed, and when the mother is up and about she must wear a clean piece of cloth to protect both nipples from her garments. If milk tends to run from her breasts she should wear a piece of gamgee tissue over each nipple. Particular care must be exercised when washing the nipples before the baby is put to the breast.

Let me here take the opportunity of reminding you that the care of the breasts should begin long before the child arrives. (See Chapter XV.)

Nipples so prepared and treated with care, will not as a rule crack. Even should they crack, a nipple shield can be used, and mastitis should not occur. If mastitis does occur, apply hot fomentations four hourly, and a tight binder, and you will never be responsible for a breast abscess! One word of warning. Some nurses are apt to be heroic with fomentations. It is the warm moisture which benefits the patient, not the extreme heat which lasts only for a few seconds. Breasts are very easily burnt, especially the delicate skins of fair people. I know of one case where an excellent fully trained nurse burnt the skin off a breast, and very nearly caused the hospital to be involved in a troublesome law suit.

Routine.

Most people adopt the three-hourly system of feeding, but some consider that they obtain better results from the four-hourly system. I certainly think that the four-hourly system ought, in any case, to be adopted as soon as the baby is six weeks old. I shall describe the former method, which can of course be easily varied. The main points in feeding are: 1. Regularity. 2. No feeding in the night. 3. No feeding until the child stops crying.

1. *Regularity.*—I confess that when I watched some little lambs not so very long ago dashing at their mothers, and sucking with such vigour that I expected to see their little heads pop out through the mothers' backs, and sucking with such frequency that the poor ewes could get no peace, I wondered whether regularity was a fad! Anyway, it has been proved that human beings thrive best when they are fed at regular intervals, whether they be big, little or very little.

2. *Feeding in the Night.*—If a baby can obtain food by the simple process of crying, then he will cry and obtain it. Now the mother deserves some rest, as do the other members of the household. If the baby is fed last thing at night, and is allowed to cry and exercise his lungs for two or three nights, he will give up the pastime and settle to sleep until about 6 A.M. There are no exceptions to this rule, but there are many who will not give it a fair trial.

3. *No Feeding until the Child stops Crying.*—When you see a bad-tempered man say to yourself, "Hm! fed because he cried". This is not the place to discuss how much of our character is formed before we leave the cradle, but certainly it is the place to urge that the child should always cease crying, if only for a short while, before it is fed. A baby aged four days has got a potential temper, which can easily be developed.

In hospital, of course, it is easy to keep to a routine. The babies are dished out, the breasts bathed, the infant feeds, the mother is allowed to nurse it for a short while, and back it goes to its cot! There are some women who very much dislike the idea of feeding their babies. They say, "it is just like the cows". Most women, however, offer no such objections,

so long as they are in bed, but as soon as they are up and about they feel the three-hourly feeds a terrible tie and burden. Some mothers want to attend committee meetings, some insist on playing golf, others have to go to work all day to earn their daily bread. On the other hand, there are some women of the working classes who keep their babies on the breast for eighteen months or longer, for they think that by such means they may avoid becoming pregnant again.

Now you have got to encourage the mother, be firm with her, and at the same time sympathetic and reasonable. You should arrange baby's feeds to fit in with her own meals, and so make things easy. I give a short table, which can of course be easily modified.

			Baby.	Mother.
1.	6 A.M.	1st feed.	Both breasts.	..
	8.30 A.M.	Bath.		Breakfast.
2.	9 A.M.	2nd feed.	Right breast.	..
3.	12.30 P.M.	3rd feed.	Left breast.	..
	1 P.M.		..	Lunch.
4.	3.30 P.M.	4th feed.	Right breast.	..
	4 P.M.		..	Tea.
5.	6.30 P.M.	5th feed.	Left breast.	..
	7 P.M.		..	Dinner.
6.	10 P.M.	6th feed.	Both breasts.	..

At the first and sixth feeds both breasts are used. The reason for this is simple. You will see from the above table that the right breast is due for the ten o'clock feed. If it is used it will mean that the left breast is allowed to go from 6.30 P.M. until 6 A.M., that is nearly twelve hours before it is relieved. It would of course become very full and painful. Both breasts are used first thing in the morning, because both breasts have been secreting for eight hours and are both fairly full.

Points to attend to in Breast Feeding.

1. See that the nipples are well bathed with boracic lotion, and dried.
2. See that the mother is in a comfortable and suitable position. She should either sit upright, or lie—

well propped up—on the same side as the breast which the baby is to suckle.

3. See that she presents the nipple to the child in a suitable manner.
4. See that the nose of the child is not close against the breast which it is trying to suckle. This is the commonest error that is overlooked in feeding. It is impossible for the child to suckle if it cannot breathe through its nose.
5. Do not let the child go to sleep on the breast. Make it take all it wants, and then stop.

Fig. 27.—Presenting the nipple. The illustration shows the first and second fingers of the left hand grasping the right breast in such a way that the nipple may be grasped easily by the infant lips. The right hand should be used for the left breast. The mother should always wash her hands before feeding her child, and should keep her finger nails short and clean.

6. If the nipple touches the bedclothes or the mother's night-dress during the feed, rewash it with boracic lotion before the child is put back to the breast. Be extra particular in hospital. The mother will be certain to fall to a certain extent from the high standard set there.
7. If the baby possets after feeding, see how long he is at the breast. It is greed, and can be cured by allowing him less time at his meals.

How can we tell whether the baby is thriving? We cannot ask it any questions, so we must rely on our observations. "Scales and napkins" are the two watchwords. If the stools are all right, then the food is agreeing with the

child. If he is gaining weight then he is getting enough. The baby usually loses weight for the first few days, but should regain its birth weight within twelve days.

When weighing a baby before and after feeds it is of the utmost importance to weigh it under the same conditions. The baby should be changed and weighed immediately before being put to the breast. It should then be weighed in the same scales immediately after suckling. The stools and the urine that a baby passes, during or after a feed, may weigh as much as three ounces. Similarly the baby ought to be weighed at a regular time every other day. The variations often observed in the weight of a child from day to day are not real, but are the result of not paying attention to details. Remember that a man increases his weight by over a pound through drinking two glasses of beer.

If, however, a baby has normal stools and is not gaining, but rather losing weight, what are we to do? Well, we can try and stimulate the secretion of the mother's milk. We can give her more fluids, especially milk and gruel. Groats are very popular and very pleasant to the taste. Some people have great faith in Lactagol—it certainly does no harm. In the meantime we must give the baby supplementary feeds. Do not put the baby to both breasts because it is not getting enough from the one! The breasts manufacture milk, and they take at least six hours in which to make their supply. It is a poor policy to give less time to breasts which are already unable to do their work.

Before discussing artificial feeding, let me just say a few words about the feeding of twins. From what we have just said it is clearly impossible to feed both twins on the breast every three hours, because there is very rarely enough for two babies in one breast. There are several different ways of settling the question.

1. One twin may be relatively large and strong, and the other weakly. You might say, " Oh, the large and strong baby can go on the bottle, and we will put the weak one on the breast and give it the best possible chance ". On the other hand you might say, " Well, the weak one will probably die, we will

concentrate on the strong one, and by putting it on the breast, make sure that it will do well ".

2. One twin may be a boy, and the other a girl. In the olden days it was the custom to put "Johnny on the breast, because he would have to make his way in the world ". In these days there is a tendency to claim the breast for " Mary ", just to demonstrate the equality of the sexes !

I would suggest to you that each twin be given a breast. Both twins should be put to the breast last thing at night, and first thing in the morning. They should then be put to the breast alternately, and have alternate feeds from the bottle. See that there is no mistake as to which twin gets which breast, in case an abscess subsequently develops, and the rightful twin be deprived of his mother's milk.

Artificial Feeding.

We have already seen that in some few cases the child cannot be fed on the breast. Some artificial method must therefore be adopted. A wet nurse is a woman who has had a baby of her own and is willing to suckle another person's baby for a fee. Clearly the milk of another woman is the next best thing for the child after its mother's milk. It is only rarely, however, that the services of a wet nurse can be obtained. It must be remembered, too, that the wet nurse must be a healthy woman, without any constitutional disease. Never allow a mother to employ such a person without the permission of a doctor, for it is possible for the baby to acquire such a terrible disease as syphilis from a wet nurse who appears to be quite healthy. Moreover, most mothers would object on sentimental grounds to their child being suckled by another woman. Moses was suckled by a wet nurse at the expense of Pharaoh's daughter, but that wet nurse was his own mother.

Curiously enough, asses' milk is the next nearest in composition to that of a woman. Again expense prevents it being used with great frequency in this country.

Cows' milk is undoubtedly the best substitute for human milk that can be employed.

Milk consists chiefly of water. It contains protein, sugar and salts in solution. In this solution little globules of fats are suspended. The difference in the composition of human and cows' milk can be seen from the following table :

	Human Milk.	*Cows' Milk.*
Protein .	. 1-2 per cent.	3·5 per cent.
Sugar .	. 6-7 ,,	4·5 ,,
Fat .	. 3-4 ,,	4·0 ,,

It will be seen that cows' milk contains more protein and less sugar than human milk. Not only does cows' milk contain more protein, but the protein is of a more indigestible nature. To overcome this difficulty it is necessary to dilute the cows' milk and to add fat and sugar.

This difficulty in composition can be overcome to a very great extent, but there are other more serious considerations. It is very difficult to get pure cows' milk. The ordinary milk obtained from a dairy may contain as many as 200,000,000 bacteria in one cubic centimetre. That is to say, that the baby swallows over 10,000,000 bacteria with every drop of milk. Milk obtained by the best modern methods may contain as many as 10,000 bacteria in every cubic centimetre.

Moreover, a high percentage of the cows in Great Britain are infected with tuberculosis, and it is believed that tuberculosis in children is caused by drinking infected milk.

Unless you can obtain pure milk I would advise you not to feed a baby on cows' milk except on the orders of a doctor. " Certified Milk " is good, and " Grade A " (tuberculin-tested) milk is probably fairly safe.

Pasteurization is a process by which the milk is put in a bottle and placed in a vessel of cold water which is heated and allowed to boil for ten minutes. The milk in the bottle is thus raised to a temperature of about 170° F. This process kills most bacteria, but it is proved that the dead bacteria are harmful to the child.

To give Cows' Milk.—Let a quart of milk stand for a few hours in a cool place sheltered from the sun and protected from flies. Skim off the top of the milk and put it into a clean vessel. This milk should be used for the baby's feed.

To every tablespoonful of milk add two tablespoonfuls of water. To each feed add:

1. A small teaspoonful of Demerara sugar.
2. One grain of sodium citrate.

The sodium citrate makes the curd formed by the protein less heavy.

After a fortnight the milk should be diluted with an equal quantity of water. At the end of the first month the child can usually take whole milk quite well. Always add the sugar and the sodium citrate.

Some people always feed the baby on undiluted milk from the very beginning. It is quite good practice to add a teaspoonful of extract of malt to each feed.

The Bottle.—Use a boat-shaped bottle, open at both ends. Boil the bottle at least once a day. It is good practice to keep two bottles in use. Thoroughly wash it after each feed and keep it in boracic solution in a covered vessel between the feeds. Boil the rubber end and the teat before each feed. See that the hole in the teat is large enough. When the bottle is held upside down and shaken, the milk ought to " shake out " freely on to the floor. Many a baby has sucked and sucked and got nothing, because the hole in the teat was too small. Many a specialist has earned a fee for merely sticking a pin through the rubber and enlarging the hole in the teat !

Quantity of Milk.—Nature does not supply the mother's breast with a meter. No two adults eat the same amount of food, and it is ridiculous to assume that any tables can be drawn up for babies. Babies have very nearly as much individuality as their parents ! Give the baby the bottle and let him feed. If he is greedy enough to posset, reduce the time that you allow him to be at the bottle. Babies are not the only beings that "posset" as the result of too much of the " bottle ".

Assuming that the cows' milk is not satisfactory, what artificial or prepared food can we use ? There are a very great variety of patent foods on the market. Some are very near to human milk in composition. The foods to avoid are those which contain a lot of starch.

The proprietors of these foods publish wonderful advertisements complete with pictures of naked children, some scraggy and some plump. It is conclusively proved, by facsimile letters underneath, that the skinny children became plump through taking such and such a food. Some firms write nice little booklets for expectant mothers.

As a matter of fact, most healthy babies will thrive on anything. I have seen a baby in arms delighting in beer, and many a baby has done wonderfully well on crusts, soaked in gruel or soup, given from the third week of its life.

I would strongly advise you to get used to one form of food and to use it whenever necessary. The Nestlé Anglo-Swiss Company offer, amongst others, the three following preparations of tinned milk for sale :

1. Pure milk which has been sterilized.
2. Nestle's sweetened condensed milk or milk which is pasteurized, concentrated in vacuo, to which sterilized sugar solution is added. This preparation is almost sterile and contains some vitamins.
3. Ideal milk, or milk concentrated in vacuo, to which no sugar has been added. It is sterile.

The advantages of such preparations are : (1) they are cheap ; (2) they are sterile (with the exception of the condensed milk) ; (3) they require no preparation ; (4) they can be obtained anywhere in the world ; (5) they can be bought in small tins.

As soon as the tin is opened the milk should be emptied into a glass vessel, which should be covered with a clean piece of gauze and put into a cool place.

The first variety is considerably more expensive to use than are the others, and should be given as if it were ordinary cows' milk, except that a teaspoonful of extract of malt should be added.

The condensed milk is probably the most serviceable and is certainly the cheapest variety.

Directions.—To every teaspoonful of condensed milk add thirteen teaspoonfuls of water. To each feed add :

(*a*) One grain of sodium citrate ;
(*b*) One teaspoonful of extract of malt.

Reduce the amount of water given with each teaspoonful of milk, by one teaspoonful at the end of each week, until only seven teaspoonfuls are added to each teaspoonful of milk.

If ideal milk is used, it should be given in the proportion of one part of milk to five parts of water, and a small teaspoonful of Demerara sugar should be added to each feed. The strength of the feed may be gradually increased, until at the end of six weeks, one part of milk is added to three parts of water.

Use whatever food you have seen used at your Training School, unless it is too expensive, or does not seem to be satisfactory in your practice. Certified Milk is the best food to use if it can be obtained.

When the baby is six months old it should be given some such food as Benger's.

The milk when given should be at body temperature, and may be warmed either by standing the bottle in boiling water, or by using warm water when mixing the feed.

There are some babies who for a while, usually through bad feeding, are completely incapable of digesting any form of milk. The stools may or may not be green, but contain lumps of undigested fat. The infant vomits "curds". It looks pale and ill. Give such a baby one teaspoonful of castor-oil. Keep it on nothing but boiled water, without any sugar in it, given from a feeding bottle. Give the water at frequent intervals. Give grey powders in quarter-grain doses four times daily. At the end of twenty-four hours give the baby gruel feeds. Boil some thin gruel very thoroughly, and skim off the top, or strain all the gruel through fine muslin. Give this thin strained gruel, sweetened with a little milk sugar—(Demerara sugar will do if you have no lactose)—just as you would give milk. At the end of a week add a little milk to the gruel, and gradually get the baby back to milk.

The old grandmothers are right, and there are a large number of nurses who can testify to the value of this form of food in those cases where the baby cannot tolerate milk.

Additional Substances.

Olive-Oil.—When I was a house-surgeon a large policeman, who was a patient in the wards, asked me if I had ever heard

of olive-oil being used as a food for babies. I said, " no ". He then told me that his little girl had been very weakly, had been tried on all sorts of fancy foods, and had been " given up". Her mother brought her up almost entirely on olive-oil. It is a highly concentrated, nourishing food. It is tolerated by practically every baby, and acts as a mild lubricant to the bowels. Give every baby on the bottle a teaspoonful of it morning and evening. Pure olive-oil is somewhat difficult to obtain and is expensive. The cheap product called olive-oil is made from Indian Ground or Pea Nuts, and, while nourishing, is not so easily digested.

Vitamins.—The great difference between unboiled cows' milk and all the patent foods, lies in the fact that the former is " living ", but all prepared foods are " dead " milk. We know that minute amounts of some substances which we call vitamins are present in fresh milk, and prevent the child from getting such a disease as rickets. Boiling the milk destroys these vitamins.

In order to supply these substances to a baby being fed on the bottle it is necessary to give some other substances in which they are present.

After the baby is a month old give it :

1. A teaspoonful of orange juice once daily. Juice from any fresh fruit is good, but orange juice is the most valuable. Strained tomato juice is excellent and gives a lively colour to the cheeks.
2. Give a teaspoonful of cod-liver oil every day.
3. Take a swede, cut it up into small pieces on a plate. Sprinkle sugar over the pieces and allow them to stand. Give a teaspoonful of this juice two or three times a week.

Sunshine helps the vitamins. Leave the baby out in the garden in a perambulator all day and every day.

Grey Powders.—Grey powders are of the utmost value to infants. Give them in quarter-grain doses.

Castor-Oil.—An occasional teaspoonful of castor-oil is good. On the other hand its frequent use is harmful, as it tends to " bind up " the bowels after opening them.

Water.—Cool, boiled water without any sugar, may be

given to the infant from a bottle, before he settles down for the night, and between feeds on a warm day. He will never drink more than he requires to quench his thirst. If the urine stains the napkins, give the baby more water. A baby frequently cries in summer because he is thirsty.

Supplementary and Complementary Feeding.

If it is found that a baby is not gaining weight, although the stools are normal, it is necessary to give him some more milk. Immediately after he is taken from the breast, allow him to take as much milk from the bottle as he wishes. If he possets, limit the time he is allowed on the bottle. This is called supplementary feeding.

If the mother has to go to work all day, let her feed the infant before she goes out, and when she returns at night. During the day it will be necessary to feed the infant on the bottle. Do not allow the mother to give up feeding her child, even though she may not be able to suckle it more than three times in the day. Moreover, if for social reasons the mother insists on keeping engagements during the afternoon, feed the baby on the bottle at tea-time. By this arrangement the woman has six or seven hours of liberty, and can play her golf, or attend her committee meetings. This is called complementary feeding.

Premature Babies

If a baby is born before its appointed time it is more likely to die than a full term child. It will die for two reasons:

1. Loss of heat.
2. Lack of fluid.

The essentials in treating a premature child therefore are: 1. Warmth. 2. Fluid.

As soon as the child is born wrap it up, and keep it warm in a safe convenient place. Do not bath the child, but cleanse it rapidly in front of the fire with olive-oil. Dress it in a simple jacket made from gamgee tissue. A small wooden box, lined with wool, and suitably heated with hot water bottles, is an excellent crib for the child. A drawer, taken out of the chest of drawers, lined with pillows, and

turned facing the fire, forms an equally convenient "cot". Give the baby boiled water from a bottle as soon as it is in its cot. Water should thereafter be given at two-hourly intervals for the first forty-eight hours. Use a small two-ounce medicine bottle with a rubber teat attached. The bottle should be graduated so that it is possible to measure the small amounts that a premature baby takes. The bottle should be washed and boiled immediately before use, and should only be used for a few days. If the baby is very feeble, water should be given from a spoon. Although the baby may be very small and definitely premature, it may nevertheless be very hardy. More may be learnt from its "cry" than from anything else. It may be weak and puny, and sound like a lamb bleating in the distance, or it may be lusty, and bear the same resemblance to a strong healthy full term child, as a young cockerel just starting to crow to a conceited cock crowing in the morning. By their cry ye shall know them. The strong, healthy, premature infant should be put to the breast in the same way as a normal child, care being taken that it is kept warm, and that it is not kept there too long. A weakly child should not be taken out of the cot at all for the first three days. It should be fed and "changed" with the minimum of disturbance. The milk should be pumped from the breast, and given from a bottle until such time as the child is strong enough to suckle the breast. Premature babies require an enormous amount of care. One baby may keep a nurse busy the whole day, because it may require a half an hour to persuade the infant to swallow a half an ounce of water. Nevertheless, premature babies should not die unless their mothers are toxæmic. Give them olive-oil three times daily in drachm doses.

We have discussed the feeding of healthy babies. There are scattered through the country "babies' welcomes", where the mother can obtain good advice.

These centres have already done an enormous amount of good, and have in no small measure been responsible for lowering the infantile mortality rate of Great Britain. If the baby is not well, or does not thrive, see that it has the benefit of expert advice before it gets so ill that it cannot be saved.

CHAPTER XVIII

THE REGULATIONS OF THE CENTRAL MIDWIVES' BOARD

Theirs not to reason why,
Theirs not to make reply,
Theirs but to do . . .
" The Charge of the Light Brigade."—TENNYSON.

THE Registration of Midwives, which Chamberlen, the inventor of the forceps, sought to introduce into England, was made compulsory in England and Wales in 1902. The object of registration is two-fold.

1. To protect the public.
2. To protect the midwife.

The public now realize that every midwife has undergone a special period of training, and is bound to observe rules and regulations formed for their safety, and to work under the supervision of the Medical Officer of Health.

The midwife has the advantage of knowing that she belongs to an honourable corporation, which gives her a status, and protects her from unfair competition with untrained women.

No woman may call herself a midwife, or practise the art of midwifery for gain except under the supervision of a doctor, unless she is a certified midwife. If she does, she is liable to a fine of £5.

Now in this world you never get something for nothing. The more you get, the more you have to pay.

What have you got to pay?

Well, first you have to prove that you are a woman of good character, and produce a certificate to that effect.

Then you have to undergo a period of training at a recognized institution for twelve months. If you have received a general training at a recognized hospital or poor law institution, you are allowed to complete your course in six months.

You can buy a copy of the rules of the central midwives' board for 7½d., post free, from Messrs. Spottiswoode, Ballantyne & Co., Ltd., 1, New Street Square, London, E.C.4, and find all the information you require.

All I want to discuss with you is the main responsibilities and duties of a midwife, and the reasons for the various rules which you will have to obey.

First of all—what is the difference between a midwife and a maternity nurse? If a doctor has been engaged to deliver the patients, and he has been informed of the onset of labour and arrives before the nurse leaves the house, the nurse is said to be acting as a maternity nurse, otherwise she is said to be acting as a midwife, and is required to fulfil all the requirements and regulations laid down by the Board.

A maternity nurse is only subject to the following rules:

E.6, 18: 22 (1) (*d*) and (*e*), 22 (2), 23 (*d*) and (*e*).

All that these rules amount to is:

1. She is to call herself a "Certified Midwife", and nothing more and nothing less. She may, however, if she has passed the examination of the central midwives' board, add the words, "by examination".
2. She must never lay out a dead body, except in the case of a patient upon whom she has been in attendance at the time of her death.
3. Whenever she has been in attendance upon a patient or in contact with a person suffering from puerperal fevers, or from any supposed infection, or has laid out a dead body for burial, she must notify the Local Supervising Authority on the prescribed form, and disinfect herself and all her instruments and other appliances, and have her clothing thoroughly disinfected, to the satisfaction of the Local Supervising Authority, before going out to any other maternity patient.

Now the satisfaction of the Local Supervising Authority is an elastic phrase, and may mean anything. "Disinfect herself" are two interesting words. In hospital a nurse who is ordered to disinfect herself, is required to have a warm bath to which is added one or two tumblerfuls of pure carbolic, or the corresponding amount of a weaker solution, and to wash her hair. All washable clothing must be boiled, and other clothing must be sent to be disinfected by the Local Sanitary Authority.

4. There is only one other rule she has to obey, and that is to inform, (1) The Central Midwives' Board, (2) The Local Supervising Authority of any change in her address.

Now that we have got the maternity nurses disposed of, we can settle down to the midwife, pure and simple. Remember, however, that the midwife is, of course, bound to obey the rules to which we have referred, just as faithfully as is the maternity nurse.

First of all, you cannot settle in a district and start to practise, without sending your name and address to the Local Supervising Authority. You must send notice of any change in your address to the Central Midwives' Board and to the Local Supervising Authority, and you must notify the Local Supervising Authority in each of the several areas in which you may have to attend cases. Rule 22. 2.

It is obvious that you cannot practise midwifery in a black satin dress, or a green coat and skirt. The rules say that you must have a suitable dress, which can be washed and boiled, and which allows the sleeves to roll up above the elbows. Nothing is said about underclothes! They should also be capable of being boiled, and should be frequently changed. An overall or apron must also be worn, and it must be washable. (E. 2.)

It is equally clear that you cannot go wandering off to a case with your hands in your pockets. You must take with you a metal case, or a bag, or a basket, which must not be used for anything except your midwifery instruments. This bag or case (I should strongly advise you not to use a basket) must have a lining which can be removed and washed. (E. 3.)

You are compelled to carry with you:

(*a*) 1. An appliance for giving vaginal injections.
2. A separate appliance for giving enemata.
3. A catheter.
4. A clinical thermometer.
5. A pair of scissors.
6. A nail brush.

(*b*) An efficient antiseptic, or efficient antiseptics, for such purposes as:
1. Disinfecting the hands.
2. Douching in special cases.
3. Cleansing the infant's eyelids.

Although you are compelled to carry an appliance for giving vaginal douches, you are not compelled to use it, and I strongly advise you never to dream of douching a vagina.

The rules demand:

1. That the midwife must wash her hands and forearms before touching the generative organs or their neighbourhood.
2. That all instruments and other appliances before being brought into contact with the patient's generative organs, must be disinfected, preferably by boiling. (E. 4.)
3. The midwife must wash the patient's external parts with soap and water, and then swab them with an efficient antiseptic solution on the following occasions:
   (*a*) Before making the first internal examination,
   (*b*) After the termination of labour,
   (*c*) During the lying-in period,
   (*d*) Before passing a catheter. (E. 8.)

The swabbing with antiseptic solution must be repeated before each further examination and before a douche is given. For this purpose the midwife must on no account use ordinary sponges or flannels, but material which has been boiled or otherwise disinfected before use.

You are told what to do before making a vaginal examination, but you are not compelled to make a vaginal examination.

Another rule says, "No more internal examinations should be made than are absolutely necessary". (E. 9.) If you can conduct the case without any vaginal examination you are a midwife, if you cannot—you had better give up practice.

There are also rules which demand that the placenta and membranes must be examined and removed from the room or destroyed. The midwife must remove soiled linen, blood, fæces and urine from the lying-in room as soon as possible after labour, and in every case before she leaves the house. She must also be responsible for the cleanliness, and give directions for securing the comfort and proper dieting of the mother and child during the lying-in period. (E. 10, 11, 12.)

All these directions are straightforward. There is a regulation which defines the lying-in period in a normal case to mean the time occupied by the labour, and a period of ten days thereafter. (E. 12.)

At each visit the midwife must take and record the pulse and temperature of the patient. These records must be entered, with dates and times, in a notebook or on charts, which must be carefully preserved. (E. 14.)

If for any reason the visits have to be continued after the tenth day, the fact must be noted in her register, with the explanation of the reason. (E. 12.)

The rules concerning the child require :

1. The eyelids must be carefully cleansed, as soon as the child's head is born, and if possible before the eyes are opened.
2. In the case of a child born apparently dead, the midwife must carry out the methods of resuscitation which she has learned. (E. 15.)
3. On the birth of a child which is likely to die, the midwife shall inform one of the parents of the child's condition.

The midwife is required to keep a register of cases in a prescribed form, and if she gives any drug other than a simple aperient she must record:

1. The name of the drug.
2. The time, date and reason for its administration or application.

Most of the foregoing rules have applied to normal labour, and except for the explicit direction as to clothes, and instruments and disinfection, and the keeping of a register of cases, the midwife is asked to do nothing, but carry out good methods in midwifery.

The important rule, which has been emphasized throughout the book is rule E. 20, which states :

In all cases of illness of the patient or child, or of any abnormality occurring during pregnancy, labour, or lying-in, a midwife must forthwith call to her assistance a registered medical practitioner, using the prescribed form (Rule 23*a*), properly filled in and signed by her.

What are these conditions ? Well, we have mentioned them many times in the appropriate chapters. The rules say:

1. In all cases in which a woman during pregnancy, labour, or lying-in appears to be dying or is dead. . . .

Well, if anybody appeared to be dying or was dead, the first idea that would occur to the average individual would be to send for a doctor.

Pregnancy.

1. Deformity or stunted growth.
2. Loss of blood.
3. Abortion or threatened abortion.
4. Excessive sickness.
5. Puffiness of hands or face.
6. Fits or convulsions.
7. Dangerous varicose veins.
8. Purulent discharge.
9. Sores of the genitals.

Labour.

In the case of a woman in labour at or near term.

1. Fits or convulsions.
2. Purulent discharge.
3. Sores of the genitals.
4. A malpresentation.
5. Presentation other than the uncomplicated head or breech.

6. Where no presentation can be made out.
7. Where there is excessive bleeding.
8. Where two hours after the birth of the child the placenta has not been completely expelled.
9. In cases of serious rupture of the perineum, or of other injuries of the soft parts.

There are only two remarks I would make here :

1. Always send for a doctor if you diagnose a breech presentation.
2. Do not wait for excessive bleeding, always send for a doctor if there is *any* bleeding, for all bleeding is abnormal.

Puerperium or Lying-in.

1. Fits or convulsions.
2. Abdominal swelling and tenderness.
3. Offensive lochia, if persistent.
4. Rigor, with raised temperature.
5. Rise of temperature above 100·4 F. with quickening of the pulse, for more than twenty-four hours.
6. Unusual swelling of the breasts, with local tenderness or pain.
7. Secondary post-partum hæmorrhage.
8. White leg.

The Child.

1. Injuries received during birth.
2. Any malformation or deformity endangering the child's life.
3. Dangerous feebleness in a premature or full term child.
4. Inflammation of, or discharge from, the eyes, however slight.
5. Serious skin eruptions, especially those marked by the formation of watery blisters.
6. Inflammation about, or hæmorrhage from, the navel.

These rules need no explanation. In the next chapter we will discuss the relationship of the Midwife to the Local Supervising Authority.

CHAPTER XIX

THE LOCAL SUPERVISING AUTHORITY

For rulers are not a terror to good works, but to the evil. Wilt thou then not be afraid of the power? Do that which is good, and thou shalt have praise of the same.—ROMANS xiii. 3.

THERE is no sense in forming rules if there is no authority to see that they are enforced. The Central Midwives' Board meets in London, and it is obvious that its members are incapable of supervising the great number of midwives practising throughout the country. For this reason every district has a "Local Supervising Authority", who is either the Medical Officer of Health or somebody appointed by and responsible to him.

A midwife must notify the Local Supervising Authority of her intention to practise, and must let him know of any change in her address. She must also inform the Local Supervising Authorities of other areas in which she may attend cases, of her intention to practise, giving her address.

Whenever she sends for medical help as required by Rules 21 and 22, she must inform him as soon as possible, but certainly within twenty-four hours (Rule 23), and he will pay the medical practitioner his fee in accordance with the scale prescribed by the Ministry of Health.

She must also notify the Local Supervising Authority in the case of :

1. A death. (Rule 23 *b*.)
2. A stillbirth. (Rule 23 *c*.)
3. Having laid out a dead body. (Rule 23 *d*.)
4. Her liability to be a source of infection. (Rule 23 *e*.)

If a midwife for any reason proposes to substitute

artificial for breast feeding she must notify the Local Supervising Authority, giving her reasons. (Rule 23 *f*.)

The Local Supervising Authority is bound to make arrangements to secure a proper inspection of :

1. The register of cases,
2. The bag of appliances, etc.,

of every midwife practising in his district. He may, if he thinks necessary, arrange for an inspection of her place of residence, and for an investigation of her mode of practice. The midwife is required to give every reasonable facility for such inspection.

If the midwife has come into contact with any form of infection she must notify the Local Supervising Authority, and may not attend another case of midwifery without his permission.

He may, if he thinks proper, suspend her from her duties, in which case he may remunerate her for her loss of fees. This suspension should not as a rule last for more than twenty-four hours. Should this period of time be exceeded he must write to the secretary of the Central Midwives' Board, giving his reasons for the prolonged suspension.

Should the midwife be guilty of breaking any of the rules governing her practice, she may be :

1. Struck off the Roll of Midwives.
2. Merely reprimanded and cautioned.

It is important for the midwife to realize that the " judge " in the case is the Central Midwives' Board, and the Local Supervising Authority is the " prosecuting counsel ". At the " trial " she may have a friend, legal or otherwise, to defend her, and reasonable expenses which she incurs may be defrayed if she is exonerated by the Board.

If her name is struck off the roll, she may after a lapse of time apply to the Central Midwives' Board for her name to be restored to the register. She must, however, procure certificates from the Local Supervising Authority and two other people, being :

1. Justices of the Peace,
2. Ministers of Religion, or
3. Registered Medical Practitioners,

testifying to her good character.

It is not necessary to consider in further detail the subject of the punishment of midwives. The authorities are anxious to protect the community, and to help and assist all women practising as midwives. The powers we have discussed are only used in extreme cases, and as far as I am aware, errors in practice are, as a rule, corrected by sympathetic advice and encouragement by the authorities.

There is one other occasion when the Local Supervising Authority may suspend a midwife, and that is when she is involved in an action in a law-court.

The rules governing practice in Scotland and Ireland, while differing in detail, are very similar to those in force in England and Wales.

Let me close by again emphasizing the fact that the laws are formed for the good of all, and that the punishment of evil doers is a painful necessity. If midwives will realize their high calling, their great privileges, and their solemn obligations, then they will find that these laws will be their charter of liberty.

CHAPTER XX

GERMS

> Sleep ; and if life was bitter to thee, pardon,
> If sweet, give thanks, thou hast no more to live,
> And to give thanks is good, and to forgive.
> "Ave atque Vale."—SWINBURNE.

PUERPERAL fever is a term loosely applied to those infections to which a puerperal woman is liable as a direct result of having given birth to a child. It therefore includes such conditions as pyæmia, sapræmia and septicæmia. The trouble may be slight and the woman make an uninterrupted recovery, it may be more severe and leave the woman a semi-invalid, or it may prove rapidly fatal. Each condition will be separately considered elsewhere, but the essential thing to remember is that the infection almost invariably comes from outside the woman's vagina and can be avoided. It is true that septic foci such as boils or abscesses, or a discharge from the ear, are liable to lead to a septicæmia, but the pus must be conveyed by somebody to the vagina. Puerperal fever always means that someone has blundered. The whole condition is so important, so frequent, and lies so much in the hands of the nurse that it will be fully discussed. The greater number of confinements in the British Isles are attended solely by nurses, and I am convinced that it would be well for the women of these islands if a still higher percentage of deliveries were conducted by midwives. If, therefore, this scourge is to die out, the midwives must take a large share in the battle.

History.

So long as babies have been born, so long has puerperal fever existed. Hippocrates in the fourth century before

Christ was well acquainted with the condition. Clearly the more women were crowded together in the cities the more they were likely to be infected. If a woman went into the jungle and was delivered there, she was of less danger to others. The laws of many religions were undoubtedly framed for this very purpose. In the Jewish, Hindu and many other religions, not only a puerperal but a menstruating woman is unclean. Then, too, the more civilized and consequently the more un-natural a woman becomes the more liable she is to these troubles. Highly-bred mares and bitches are far more liable to die as the result of labour than are their less favoured sisters. The Hottentot goes to work in the fields, takes an hour or more off while she relieves herself of her child and her placenta, and then returns to work with the infant slung on her shoulder, or deposited in a convenient ditch. Our patients make much more of a fuss, and have much more time in which to go wrong.

All sorts of explanations were offered to explain this fever, but no one got on the right track until the last century. It is true that a doctor in Ashby, named Thomas Kirkland, as early as 1774 realized that the fever was contagious. Doctor Gordon of Aberdeen in 1795 wrote, "It is a disagreeable declaration for me to mention that I myself was the means of carrying the infection to a great number of women". Roughly half a century later Semmelweiss made his classical observations and experiments in Vienna. In the large Lying-in Hospital there, things were in a deplorable condition. The hospital was divided into two services. In the one the women were attended by the midwives, in the other by the students. One woman in twenty died in the midwives' department, one woman in ten in the other. Women about to be delivered prayed to be allowed to go to the midwives, and failing that considered themselves lucky if their infant was born under a railway bridge, as they thus avoided examination by the students. The young assistant Semmelweiss hit upon the essential difference between the students and the midwives. The students dissected the dead bodies while studying anatomy, the midwives did not. Moreover, the bodies in that day were not preserved as they are now. He compelled the students to soak their hands in an anti-

septic. He ordered chlorine water, and the astounding result was that the death rate fell from 10 per cent to 1 per cent. While knowing nothing about bacteria he had hit upon the root of the evil, and that root is that the infection comes from without, and usually on the end of the attendant's finger. These are his words : " I consider puerperal fever, not a single case excepted, as a resorption fever, caused by the resorption of a decomposed animal-organic material. . . . The decomposed animal-organic material, which, when resorbed, causes child-bed fever, is brought to the individual from without in the great majority of cases, and this is infection from without. These are the cases which represent the epidemics of child-bed fever. These are the cases which can be prevented." The only things we have since learnt are that the decomposed animal-organic matter consists of bacteria, and that practically all cases can be prevented. Remember that for years afterwards surgeons continued to operate in dirty blood-stiffened coats, and then realize how brilliant was his discovery. Was his teaching accepted? No. There were two reasons, (1) Semmelweiss was a young man, and the authorities of the day were jealous and opposed his teaching ; (2) Semmelweiss annoyed everybody by his unpleasant behaviour. So they went back to killing the women in Vienna, and the new discovery was everywhere discredited. It was left to the great Lord Lister to make the discovery anew, knowing of the existence of the germs first described by the Frenchman Pasteur. What result did his discovery have? Puerperal fever practically ceased to exist in well run maternity hospitals. In private, however, things are not much, if any, better than they were twenty-five years ago.

Germs.

These germs which, as we have seen, were discovered by Pasteur are very interesting. They are so small that they cannot be seen except with the aid of a powerful microscope. That, of course, is why no one saw them until last century. Although so small that it is difficult to say whether they are animals or vegetables they are of the utmost importance to the human race. It is no exaggeration to say that without

them it would be impossible for us to live. Paradoxical as it may seem, they also try to make it impossible for us to live. Practically all diseases that kill us are caused by germs. Now, of course, they do not deliberately set out to destroy men and women, but it so happens that in their struggle for existence they indirectly kill them. They look very simple when you manage to find them under the microscope. They have no eyes or mouth or teeth or legs. They simply consist of one little cavity which is enclosed by a substance like gelatin. Imagine a coffin so small that you could hold a million million of them on your hand and hardly know they were there, and you would have a good idea of these invisible hosts. Inside this little "coffin", there is a fluid about which nobody knows much at present. Still that fluid, curious as it may seem, represents the brain, liver, lungs and everything else which we associate with animals.

Of course there are a great many different kinds of germs. Some are bigger than others. Some can move about by means of tails which grow from their bodies, while others cannot move at all. Some grow in chains, while others grow in pairs or fours. Some are difficult to distinguish, others are easy. The men who study these germs are called bacteriologists. They use different names for different kinds of germs. Thus instead of saying germs, we may use either the word bacteria or the word micro-organisms. The main groups that interest us are the bacilli, and cocci. You have all heard of the bacillus coli which normally lives in the bowel. The three great groups of the tribe of cocci that we meet are the gonococci, the staphylococci, and the streptococci. It is not necessary to know any more about names, but remember that the streptococcus is the most dangerous organism in puerperal fever.

Bacteria do not have children. They are guilty to a certain extent of practising birth control. When circumstances are favourable they multiply, otherwise they do not. Favourable circumstances simply means good food. There are no males and no females. They all take their fair share in the work. They feed, swell, and just burst into two. This they do every twenty minutes. Supposing that one

bacterium divides and then the two " daughter " bacteria divide, work out for yourself how many there would be at the end of a day. Fortunately most of them get killed, otherwise, small as they are, the whole world would soon consist entirely of bacteria.

Another curious thing about these germs is that they are, with the exception of a few tribes, quite harmless to man when they are alive, and only do him harm when they are dead. A certain Irishman was threatened with death by an Irregular. " Shoot," he said, " and when I am dead I will haunt you." He was left to go home in safety. This is what happens. The gelatin covering, or envelope, dissolves, and the fluid is allowed to escape. It is this fluid that poisons the patient. This fluid may be intensely poisonous, or it may be only very mildly poisonous, and either take a long time to act, or have very slight effects. Thus in a serious case of puerperal fever the woman may die in three days. On the other hand, the effects of constipation, which are due to the absorption of the " fluid " from the dead bacteria in the intestinal canal, may simply result in headache or general lassitude, or in time in such unpleasant conditions as arthritis or neurasthenia.

Where do these organisms live ? There are few places where man is that they are not. They live in the earth. These are the ones which are essential to plants and therefore essential to man. These also are the ones that cause summer diarrhœa, and infect the milk when it is left lying in the pails. They live on the skin of every living animal. They live in the mouth and throat, and in most of the intestinal canal. They live in the air. When you see particles of dust dancing in the rays of the sun, consider them as the chariots on which they ride. When you see any one cough or sneeze remember that thousands of organisms are flung out into the air from the mouth of the speaker. When you hear any one talk, remember there are probably many organisms in the small particles of spit that he " speaks out " at frequent intervals. When you see people kiss, remember to be thankful that the bacteria they are exchanging are in all probability harmless. These statements are by no means exaggerated. Call to mind the influenza epidemic, when millions of people lost

their lives, all because the organisms coughed, spat and kissed were not harmless but deadly.

All animals live on food. Most of them have a more or less regular diet, some preferring meat and others vegetables, while the rest are not particular. In some cases, owing to lack of food and other conditions, the animal may temporarily or permanently change its diet. Thus a tiger will not as a rule kill a man for food. He will run away if he is not cornered or annoyed. When he gets old he becomes less and less efficient as a hunter. At this stage he will kill and eat a man if opportunity offers. Ever after he is known as a " Man-eater ". From this time on he hunts man and is not truly satisfied with anything less tasty.

Although bacteria are probably only vegetables, let us consider them as beasts of the forest. As far as we are concerned they live in the forests of the mouth, intestine, and skin. The parts of the forest of skin with which we are most concerned are the hands and external genitals. Remember they are so small that the pores of the skin, the cracks on the skin and the pubic hairs are, in comparison, larger than the tallest trees. Herein lies the whole difficulty. You cannot clear the forest without felling the trees. Neither can you completely clear the hands or the genitals without removing the pores and the cracks. There are only two convenient ways of killing bacteria—(1) Heat, (2) Poisons. It is impossible to boil the hands or the vulva. Therefore, after washing away as many as possible, some poison or antiseptic must be used to poison the germs. The trouble is, that if you use too powerful a poison you damage the hand, while the great majority of the germs are not reached by the antiseptic. One thing is certain, and that is, that it is impossible to rid the hands entirely of bacteria, even for a short while.

There are two so-called divisions of bacteria. The one group lives on decaying matter, *e.g.* dung or retained lochia. The other lives on fluids in the body, such as the blood or peritoneal fluid. The former are called saphrophytes, the latter pathogenic organisms. Just as the tiger changes his food when pressed, so can most of the bacteria. That is to say, the germ that is feeding on the lochia may sometimes

take a dive into the uterus and ultimately kill the woman. Finally, in the forest of the genitals there are several different kinds of organisms, as indeed there are on the hands. It is essential that the nurse should never touch anything that may contain " fierce organisms ". Should she never touch anything with such germs, she will never have them growing on her hands. On the other hand, if she does touch such organisms, she may be able to wash them away, or they may grow deep down in the skin, be impossible to remove, and be a continual source of danger to her patients. Since the introduction of rubber gloves, such contamination is entirely unnecessary and inexcusable.

ABNORMAL MIDWIFERY

Ninety-five per cent of midwifery cases should be normal.

Ninety-eight per cent of normal deliveries should run a normal puerperium.

CHAPTER XXI

POST-PARTUM HÆMORRHAGE

Then imitate the action of the tiger ;
Stiffen the sinews, summon up the blood,
. . . . . .
Then lend the eye a terrible aspect,
Let it pry through the portage of the head
Like the brass cannon ; . . . .
Now set the teeth and stretch the nostril wide,
Hold hard the breath, and bend up every spirit
To his full height !

King Henry V. Act iii. Sc. 1.

Any bleeding which occurs after the birth of the infant, other than the coming away of the retro-placental hæmatoma, is called post-partum hæmorrhage. Post-partum hæmorrhage is divided into traumatic hæmorrhage, and bleeding which comes from the placental site.

If any part of the body is cut or torn it bleeds. Traumatic post-partum hæmorrhage simply means bleeding from a tear in any part of the birth canal. The birth canal consists of the uterus, cervix, vagina and perineum.

We need not consider a ruptured uterus, for other symptoms would accompany such a disaster.

A torn cervix never bleeds long enough to cause trouble. If bleeding from a torn cervix persists it means that the tear has involved the lower uterine segment. In over 14,000 cases of labour of which I know the history, there was no case in which the cervix had to be sutured because of hæmorrhage. In any case such a tear could only follow operative interference, and would be treated by the doctor conducting the confinement.

The vagina is frequently torn. Indeed, a tear involving the whole length of the vagina may be present even when the perineum appears to be intact. Such a tear very rarely bleeds. Occasionally, after somewhat violent operative treatment, a tear of the vagina involves the neighbouring tissues and may be accompanied by troublesome bleeding. Bleeding from a torn vagina only causes trouble if the tear is very severe. Such a tear could only be caused by a doctor and would be treated by him.

A tear of the perineum is very common, and occurs in about forty per cent of all primiparæ. The tear is usually behind, and involves the structures between the vagina and the anus ; it never causes much bleeding. Occasionally a tear in the anterior part of the perineum involves the numerous veins supplying the clitoris. The bleeding may be alarming. I once saw a very free hæmorrhage from a very slight tear in that region. The treatment is to suture the tear with silkworm gut. Control the bleeding until the doctor arrives by firm pressure with swabs wrung out of biniodide.

Traumatic post-partum hæmorrhage is a good subject to write about in an examination, but practically never occurs as the result of normal labour.

Every tear of the vagina or perineum should be sutured.

Post-partum hæmorrhage is divided into two groups—Primary and Secondary. Primary hæmorrhage commences any time up till six hours after the birth of the child, and usually within an hour after the delivery. Secondary hæmorrhage commences any time after six hours and within three weeks of the birth of the child.

Secondary post-partum hæmorrhage is very rare, and is practically always caused by a retained portion of placenta. The patient starts to pass large clots, and may lose a lot of blood. The doctor must be informed at once. As a rule the bleeding stops after a good dose of ergot. Two ounces of castor-oil should be given, and the retained piece of placenta will nearly always be found in the bed-pan with the fæces. Occasionally it will be necessary for the uterus to be explored and the piece of placenta removed.

This missed portion of placenta may be due to carelessness

on the part of the nurse, but is frequently due to the succenturiate portion of the placenta being overlooked.

True primary post-partum hæmorrhage should never occur. If it does occur the woman should never die. If the woman does die it means that somebody has blundered. It always occurs as the result of partial separation of the placenta. An atonic uterus is not the cause of post-partum hæmorrhage, but post-partum hæmorrhage is the cause of an atonic uterus.

Irregular separation of the placenta is probably caused by irritation of the uterus. Irritation of the uterus is nearly always caused by the hands of the attendant. There is no shadow of doubt that a long tedious labour—in particular a long second stage—from whatever cause, tends to make the uterus more liable to contract irregularly. You would therefore expect post-partum hæmorrhage to be more likely to follow such conditions as hydramnios, twins, uterine inertia and any obstetrical operations.

During the second year of my appointment as Assistant Master of the Rotunda Hospital I did not allow the fundus to be controlled in any case which I attended. Not a single fundus was controlled at the Leeds Maternity Hospital during the year 1925. Over 1500 deliveries occurred in the Hospital during that time. The placenta had to be manually removed on two occasions. I did not see one of these patients, but it was a case of placenta succenturiata, and the succenturiate portion was nearly as large as the main portion of the placenta, it being five inches long and four inches wide.

The second patient was the only case I have ever seen in which the placenta had to be manually removed, although the fundus had been left severely alone. In this case, however, there had been an unfortunate mistake, and there is very little doubt that the woman had been left in the second stage of labour for twelve hours or more, and had eventually to be delivered by the forceps. Moreover, she had had her placenta manually removed on five previous occasions.

On the other hand, I have removed as many as three placentæ in one week from patients whose uteri were con-

trolled. In the year 1925 three placentæ had to be removed out of about four hundred "controlled" deliveries in the extern department of the Leeds Maternity Hospital.

Post-partum hæmorrhage is the bugbear of all midwives. Even the mention of the term tends to make them feel uncomfortable. I am perfectly convinced that if:

1. The woman is not left too long in the second stage of labour,
2. The labour is not allowed to proceed for twenty-four hours without the patient obtaining sleep,
3. The fundus is left severely alone after the birth of the child,

post-partum hæmorrhage would practically never occur. The bleeding is rarely, if ever, sensational. It is reminiscent not of the Niagara Falls, but of a quiet brook.

As soon as the baby is born the mother should be turned on her back and placed on a clean piece of draw-sheet. There should be absolutely no bleeding during the third stage of labour. *Any bleeding*, other than the coming away of the retro-placental hæmatoma, is post-partum hæmorrhage.

Treatment.

1. Place a clean piece of draw-sheet under the patient.
2. Pass a catheter.
3. While passing the catheter try and make out whether the bleeding is coming from the uterus, or from a tear. Do not introduce the hand into the vagina under any pretext.
4. Gently rub up the uterus so that it contracts. Be very, very gentle. Although hard at times it may relax and allow bleeding to occur.

DO NOT TRY TO EXPRESS THE PLACENTA UNTIL THE THREE CARDINAL SIGNS ARE PRESENT. (See Chapter XIV.)

If the bleeding persists send a written note to the doctor. State in it the condition of the patient and give her pulse rate and temperature. Describe the behaviour of the uterus.

What are you to do in these circumstances?

1. See that there is plenty of hot and cold water ready, together with plenty of swabs in an antiseptic solution.
2. Prepare a douche.
3. Do not raise the foot of the bed. Unless the woman is under the influence of morphia, or is very collapsed, she will feel very uncomfortable if the end of the bed is raised, and will become more restless.
4. Do not give any stimulant.
5. Do not allow her to drink large quantities of water, but give her sips of cold water to quench her thirst.
6. Keep her quiet and warm in bed. Reassure her.
7. Keep the room shaded, but not dark, otherwise you will not be able to see what is happening.
8. Control the fundus. Try and keep the uterus contracted by gentle massage. Violent efforts only cause the woman to lose more blood. While you are preparing the douche, etc., you may entrust some intelligent woman to control the fundus. If you have no one to help you, some heavy object like a flat iron placed on the abdomen, above the fundus, may prove of service. Do not apply a binder.
9. If there is a crowd of chattering relatives in the room send them all away, with the exception of the one you choose to help you.

When the doctor arrives he will remove the placenta. All that he will require will be (1) Hot water, (2) plenty of swabs, (3) a douche.

As soon as the placenta is away he will probably give an injection of morphia, and order the end of the bed to be raised on two chairs. Have a boiled teaspoon ready and some boiled water. A teaspoon is a very convenient object in which to dissolve hypodermic tablets.

The patient must be kept very warm. Hot flat irons or bricks wrapped in cloth form convenient hot water bottles. Once the placenta is away the woman should be encouraged to drink as much as possible. Water is the best fluid to give, as tea and coffee frequently cause the patient to vomit.

The doctor will almost certainly give a hypodermic injection of pituitrin and of some preparation of ergot.

The patient will probably respond to treatment, and appear to be doing well. Do not leave her for at least six hours but watch her carefully; she may have a secondary collapse, usually about two or three hours after her treatment.

Should this occur inform the doctor at once, he will undoubtedly have left his instructions.

If the Placenta has left and the Patient still Bleeds.—In such a case examine the placenta. If you are sure it is complete, rub up the uterus between your hands and give two drachms of ergot. Pass a catheter, and examine the perineum. Troublesome bleeding will not persist unless the woman has been badly treated and got overtired. In any case, if she goes on bleeding do not wait, but send for the doctor. Do not be ashamed because, when the doctor arrives, you have not got a collapsed woman to show him. On the other hand, if you do show him a collapsed woman, ask yourself if you have not been gambling with a patient's life.

Summary

If you conduct midwifery properly you will rarely, if ever, meet with post-partum hæmorrhage. If you do have it and send for aid at once and before the woman shows signs of collapse, you will never lose a patient. If you wait, the uterus will become atonic and the bleeding will be more severe.

1. Put a clean piece of draw-sheet under the patient.
2. Examine the fundus of the uterus. If it is contracted leave it alone.
3. Pass a catheter.
4. Examine the perineum. Control bleeding from it with antiseptic swabs well wrung out.
5. If the uterus is flabby, massage it gently so that it contracts.
6. Express the placenta if the three signs are present.
7. Examine the placenta. If it is incomplete send for the doctor.

If the Bleeding persists for Ten Minutes.—Send a note to the doctor.

1. Have ready a large supply of hot and cold water, with swabs in antiseptic. Reboil your gloves.
2. Reassure the patient, and keep her warm and quiet.
3. Gently control the uterus, and keep it from filling.
4. Do not try to express the placenta unless the three signs are present.
5. Do not give any drugs or stimulants of any kind. Allow the patient sips of water, and let her suck something cool, *i.e.* a pearl button.
6. Clear unnecessary people out of the room and out of the house if possible.

No patient should ever die of post-partum hæmorrhage.

There is one other matter that we must discuss while considering the subject of post-partum hæmorrhage. A midwife is allowed, by the C.M.B. rules, to remove the placenta if she honestly believes that its removal is imperative, and she cannot obtain the services of a doctor. The subject is difficult. Out of the thousands of midwives practising there are only comparatively few who cannot obtain the services of a doctor. In my opinion, no midwife should be allowed to remove or attempt to remove a placenta unless she holds a special licence. Such a licence could be given by the authorities to women practising in isolated areas in Ireland and Scotland, and then only after special training.

The removal of a placenta is by no means an easy operation. Its removal is frequently followed by a morbid puerperium, and not infrequently by a fatal septicæmia. If midwives are allowed to remove placentæ, there will always be a certain number of officious women who will act unnecessarily, and it will be impossible for the authorities to prove that they were not acting in good faith. It is better that a few women should die a clean death from post-partum hæmorrhage, than that many should die a dirty death from sepsis.

It is a terrible thing to watch a woman getting paler and paler, to hear her complain that everything is swimming

round her and to see her become delirious, but fortunately such a patient rarely dies until several hours have elapsed.

Post-partum hæmorrhage should not occur—learn all about the third stage of labour—leave nature alone, and you will not need to consider the performance of an operation for which you have had no training.

CHAPTER XXII

HÆMORRHAGE DURING PREGNANCY

Why should I joy in an abortive birth?
Love's Labour's Lost, Act i. Sc. 1.

THERE should be no bleeding from the uterus of a pregnant woman until the retro-placental hæmatoma comes away, during or immediately after the third stage of labour. All bleeding during pregnancy is abnormal. If a pregnant woman bleeds per vaginam the nurse should inform the doctor, but should never make a vaginal examination. The woman should be put to bed and kept quiet until the doctor examines her. In the message to the doctor the nurse should state:

1. How many months pregnant the patient appears to be from abdominal examination.
2. The period of amenorrhœa.
3. When the bleeding commenced, and what the patient was doing at the time.
4. The quantity of blood passed.
5. Whether the bleeding is persisting.
6. The temperature and pulse rate.

Things to Prepare.

1. Plenty of boiling water.
2. Plenty of boiled swabs in antiseptic.
3. A bath under the bed.
4. A douche.

The doctor will probably bring his own gloves and any instruments he may require.

Abortion.—Bleeding from the pregnant uterus, occurring any time up till the end of the twelfth week, is called a threatened abortion.

Miscarriage.—Bleeding from the pregnant uterus, occurring any time from the beginning of the thirteenth week up till the end of the twenty-seventh week, is called a threatened miscarriage.

All bleeding from the uterus which occurs after the end of the twenty-seventh week of pregnancy and before the birth of the child is called ante-partum hæmorrhage.

Abortion and Miscarriage.

The difference between an abortion and a miscarriage is largely one of definition. There are, however, two great differences between the two conditions:

1. The placenta is not formed until the end of the twelfth week. There is, therefore, always a little fœtus with an umbilical cord, and a placenta during the miscarriage period.
2. There may be pain, just as during a labour, with a miscarriage, but there is very rarely any pain associated with an abortion.

Causes:

1. The ovum may be of poor quality. This, of course, is only a guess, but it is probably a good guess.
2. The endometrium may be diseased, or unhealthy, so that the ovum does not get well settled in the uterus —*i.e.* endometritis.
3. The blood supply to the growing ovum may not be good. A poor blood supply is caused by such diseases as syphilis, and kidney disease, as well as by poisons such as lead and arsenic.
4. The uterus may be retroverted and prevented from getting into its normal position by fibroid tumours, or by adhesions.
5. Fright may apparently be the cause, or even a fall.

We need not consider the causes of the condition any

further, but I want you to pay particular notice to the following facts :

1. The majority of healthy women who have had four or more pregnancies have also had one or more miscarriages or abortions.
2. A woman may menstruate during the first three months of her pregnancy.
3. Some women tend to bleed at the time they would expect their periods if they were not pregnant. Such women should go to bed at these times, and rest for a few days.

There is one extra cause of a miscarriage after the twentieth week—that is, a low insertion of the placenta called a placenta prævia after the twenty-seventh week of pregnancy.

Symptoms :

Abortion	Bleeding.
Miscarriage . . .	(1) Bleeding.
	(2) Pain.

Abortion.

From the first until the end of the twelfth week of pregnancy.

There are several terms applied to abortions, which it is advisable to know :

1. A Threatened Abortion.—When a woman who is pregnant not more than twelve weeks bleeds from the uterus, she is said to suffer from a threatened abortion.
2. Incomplete Abortion.—If part of the ovum or its membranes come away and a part is retained in the uterus, the abortion is said to be incomplete.
3. Complete Abortion.—When the complete ovum comes away the abortion is said to be complete.
4. Missed Abortion.—When the ovum dies, but is not expelled, the woman is said to have had a missed abortion.
5. Cervical Abortion.—When the ovum is expelled from the uterus but remains in the cervical canal, it is termed a cervical abortion.

6. Criminal Abortion.—Any abortion, be it complete or incomplete, that is caused by the taking of drugs, or by any instruments used by lay persons, is termed criminal abortion.

In very exceptional circumstances the doctor may consider it necessary, in the interests of the woman's life, to induce an abortion.

Miscarriage.

From the thirteenth until the end of the twenty-seventh week of pregnancy.

1. A Threatened Miscarriage.—When a woman more than twelve weeks but less than twenty-eight weeks pregnant, bleeds from her uterus, she is said to be suffering from a threatened miscarriage.
2. Retained Placenta.—When the fœtus comes away, but the placenta is retained, she is said to have a retained placenta.

Treatment :

1. The patient must be put to bed and kept quiet until the doctor arrives.
2. All clots must be saved for the doctor's inspection.

The doctor may clear out the uterus, or he may give the patient some drug such as morphia. He will require :

1. Plenty of hot and cold water.
2. Plenty of boiled swabs kept in antiseptic.
3. A douche.

Ante-partum Hæmorrhage

1. Accidental Hæmorrhage. 2. Placenta Prævia.

All bleeding which comes from the uterus twenty-eight weeks or more pregnant, before the birth of the child, is termed Ante-partum Hæmorrhage.

Except in very rare cases this bleeding comes from the placental site.

If the placenta is normally situated, the case is said to be one of Accidental Hæmorrhage.

If either a part or the whole of the placenta is situated on the lower uterine segment, it is called a PLACENTA PRÆVIA, and the bleeding is said to be INEVITABLE.

History.—The patient is twenty-eight weeks or more pregnant. She had been quite well. She went to bed last night and slept well. She woke up early in the morning and got out of bed to pass water. She looked in the chamber and found she had passed blood. She got back into bed and sent for you. The bleeding stopped. Such is a typical history of PLACENTA PRÆVIA. It is a sudden painless bleeding which stops. I want you to remember, however, that that bleeding will start again. It may recommence in one hour, it may not trouble her again for a month, but it is *absolutely impossible* for the child to be born without the mother bleeding, it may be severely, or even fatally.

A woman with a placenta prævia, or in her own language, "with the after-birth coming first", is in great danger of her life until she is treated.

I remember one case in particular, where a woman had bled on three separate occasions. Just because the bleeding stopped as suddenly as it had started her nurse told her that she would be all right. She had a sudden severe hæmorrhage, and died soon after admission to hospital.

Now I want you to compare this history with that of an accidental hæmorrhage patient. The woman sends for you because she is ill, not because she is bleeding. She may have been out of sorts for some time—and indeed there is nearly always the history of ill-health for a week or more. She may have fainted before sending for you. The bleeding from the uterus is not severe, but is a trickle which persists.

Appearance of the Patient.—Look well at the patient as you enter the room. The placenta prævia woman looks well, if perhaps a little frightened. If she has lost a lot of blood she will look pale, otherwise you will notice nothing wrong with her.

The accidental hæmorrhage woman looks ill, possibly a trifle yellowish. She wears an anxious expression, and appears to be in pain. She does not lie on her back, but on her side. She is breathing faster than normal.

Examination of a Placenta Prævia Patient.

The patient will have a normal pulse rate, unless she has lost a lot of blood, in which case it will be faster than usual.

The Abdomen.—The abdomen is that of a normal pregnant woman, except that the presenting part, nearly always a head, is never engaged. It tends to lie in one or other iliac fossa.

Vagina.—The vagina will probably be blood-stained. If the bleeding has been considerable the cervix will almost certainly admit two fingers. The placenta will be felt. Remember that placenta prævia cannot be diagnosed until it has been felt by the examining finger. It may be difficult to distinguish between blood clot and placenta. If you practise sticking your gloved fingers into placentæ as suggested in Chapter V. you will be able to recognize a placenta!

Although I have told you this, I want to urge you never to examine such a patient per vaginam. She is bleeding or has bled. She should not have bled. You cannot treat the condition, and your examination is a distinct risk to the mother. Such patients are very likely to go septic, because the organisms I have told you about are introduced directly on to the placental site.

Examination of an Accidental Hæmorrhage Patient.

Her pulse rate is fast. Her abdomen is prominent, and possibly more globular in shape than is usual. It is tensely elastic, painful and tender to the touch. No fœtal parts can be felt. No fœtal heart can be heard. There may be a slow trickle of blood from the vagina.

Per Vaginam.—No placenta can be felt.

To Recapitulate.—The placenta prævia patient is a woman, a pregnant woman, a woman pregnant more than twenty-seven weeks. She has had a sudden, free, painless bleeding from her uterus which has stopped. The presenting part is not engaged.

The accidental hæmorrhage patient is a woman, a pregnant woman, a woman pregnant more than twenty-eight

weeks. She is an " ill " woman. Her pulse and respiration rates are increased. She is lying on her side. Her abdomen is prominent, tensely elastic, painful and tender. No fœtal parts are felt and no fœtal heart is heard. Her urine is loaded with albumin.

Treatment :

Placenta Prævia.—Version, with the bringing down of a leg. Occasionally, when the child is at full term, a Cæsarean section may be considered.

Accidental Hæmorrhage.—The woman is usually in labour. The membranes are ruptured and pituitrin ½ c.cm. is given. Occasionally it may be necessary to plug the vagina. In very rare cases Cæsarean hysterectomy may be performed. The baby is always dead.

I have described the severe type of accidental hæmorrhage to you. All of you, I expect, have seen several cases of women who were admitted to the hospital because of ante-partum hæmorrhage. When they were examined no placenta could be felt. They had no albumin in the urine. They finally went into labour and delivered themselves without any trouble. The baby was born healthy. These form the greater number of cases of ante-partum hæmorrhage, and require no treatment. Such patients, however, must be kept under observation. If there is no albumin in the urine, ante-partum hæmorrhage is probably caused by the slight separation of a high lateral placenta prævia.

There are two other causes of bleeding during the early months of pregnancy:

1. Ectopic Gestation.
2. Hydatidiform Mole.

Ectopic Gestation.

Occasionally the ovum develops in the Fallopian tube instead of in the uterus. This situation is obviously unsuited for the growing ovum. Such a pregnancy is fraught with great danger to the mother. The Fallopian tube is frequently ruptured, and there is free bleeding into the abdomen or pelvis.

Symptoms.—1. Bleeding. 2. Pain.

The woman believes herself to be pregnant, and concludes that she is going to have an abortion. The bleeding usually commences somewhere about the twelfth week of the pregnancy. Occasionally a cast of the uterus is passed during the bleeding.

The bleeding is usually, but not always, associated with pain in one side of her lower abdomen. The pain may be moderate at first, but frequently becomes very severe.

The woman has usually had at least one previous pregnancy.

Diagnosis.—The diagnosis may be difficult, and can only be made by vaginal examination. The uterus is enlarged, but not so much as would be expected for the period of amenorrhœa. There is a tender swelling in one broad ligament, about the size and shape of a hen's egg.

Treatment.—Immediate removal to an institution where the abdomen can be opened, and the ovum removed.

This condition is fortunately comparatively rare. The woman is usually more "ill" than would be expected from her symptoms. When the gestation ruptures most of the bleeding occurs inside the abdomen, and only a small amount of blood passes into the vagina.

Remember all bleeding from a pregnant uterus is abnormal. Send for the doctor immediately any bleeding occurs, but do not make a vaginal examination.

Hydatidiform Mole.

This is a very rare and interesting condition. The ovum disappears and the diseased chorion consists of thousands of little white bladders, arranged on "stalks" and containing a clear fluid.

Symptoms.—There is only one symptom—Bleeding. Occasionally the woman complains of ill-health, and possibly of excessive vomiting.

The uterus is usually larger than you would expect for the period of amenorrhœa, and may appear firmer than usual.

The bleeding usually commences somewhere about the twelfth week of pregnancy. Some of the little bladders, or vesicles, may come away, with the blood. You are told to

look out for "white currants in red currant jelly". It has been my fortune to see a relatively large number of hydatidiform moles, but I have never yet seen these vesicles until during or after the delivery of the mole. Some people think they look more like boiled sago than white currants.

Sometimes the whole mole is delivered soon after the bleeding commences. More often there are several attacks of slight bleeding at intervals of several days. There is no pain. Such a patient may have a sudden very severe hæmorrhage and lose a pint of blood in a few minutes.

Treatment.—The mole must be manually removed. In order that this may be accomplished the cervix must admit at least two fingers.

There is a very rare and interesting disease called chorion epithelioma. It is a very malignant form of cancer which sometimes follows a hydatidiform mole. All women who have had such a mole should be examined by a doctor at intervals of a month, until six months have elapsed.

In conclusion, let me remind you that any bleeding that occurs from a pregnant uterus is abnormal. The fact that the bleeding is not severe, or that it stops, is no proof that the condition is not dangerous. Send for the doctor immediately. Have ready plenty of hot water, plenty of swabs in antiseptic solution, and a douche if possible.

CHAPTER XXIII

THE TOXÆMIAS OF PREGNANCY

Doctor Fizz says its wind,
Doctor Fuzz says its water,
But Doctor Buzz says it lies between wind and water.
Ingoldsby Legends.

And now we come to the so-called Toxæmias of Pregnancy. Many books have been written about this subject, and yet it is true to say, I think, that there is no subject in medicine about which we know less.

When you go into the forest and see the mistletoe growing upon an oak-tree, you call the mistletoe a parasite. That is to say, the oak-tree does all the work in obtaining the food and the mistletoe just feeds on the oak. In the same way the baby, while in the womb, is a parasite. All sorts of unusual substances are circulating in the pregnant woman's blood stream, and these substances, call them toxins or poisons, or what you please, sometimes cause unpleasant symptoms to the mother.

There are the so-called minor manifestations and the so-called major manifestations. The following are the minor manifestations :

(1) Headache.
(2) Insomnia.
(3) Vomiting.
(4) Excessive salivation.
(5) Neuritis.
(6) Pruritus.
(7) Cravings.

} Most of these symptoms usually occur during the first six months of pregnancy.

The major manifestations are :

(1) The Kidney of Pregnancy.
(2) Eclampsia.
(3) Accidental Hæmorrhage.
(4) Acute yellow Atrophy.

These manifestations only occur after the twenty-fourth week of pregnancy. Albumin is always present in the urine in such cases.

The Minor Manifestations

1. Headache and Sleeplessness very often go together. The terms need no explanation.

2. Vomiting.—The Vomiting of Pregnancy is a very interesting subject. The vast majority of pregnant women suffer from this trouble to a greater or lesser extent. It usually occurs in the morning when the patient first awakens. She feels sick, but may not bring anything up save a sort of " phlegm ". The patient very often describes it as a " dry retching ". If the patient can remain in bed for two or three hours and take a cup of tea and a little dry toast, the sickness passes away and does not return until the following morning.

It usually comes on after the sixth week of pregnancy, and disappears before the end of the sixteenth week. Sometimes the woman is not sick in the morning, but has the feeling of sickness when she starts to undress before getting into bed at night.

This vomiting must be looked upon as normal.

Now in some cases the woman starts to vomit after her meals. She does not vomit after every meal, neither does she vomit the whole of the meal. Some days she is worse than others.

In a few cases the patient vomits everything, and even vomits during the night. She cannot even take water. The condition is then called hyperemesis gravidarum. We need not stay to discuss the causes of the condition, but we can just remember the following facts :

(1) The condition is usually met with in the nervous type of patient.

(2) The woman may be unhappy at home, or have some cause for anxiety.
(3) The patient not infrequently does not want a baby and hopes the doctor will empty the uterus.

Treatment.—The ordinary vomiting of pregnancy requires no treatment. When the vomiting increases in frequency, the patient should be thoroughly purged, and take only three plain meals in the day. She should take some purgative every day, and if possible go away for a short holiday.

Hyperemesis gravidarum.

The patient must be removed from her home and surroundings either to a nursing home or to a hospital. This is essential, and forms the main part of the treatment. The nurse must be firm and at the same time sympathetic. She must obey the doctor's orders in the spirit and in the letter. Usually the patient is thoroughly purged, and put on a light tempting diet. The nurse should dress the patient in her best nightdress, and her most attractive boudoir cap and dressing jacket. All vomit bowls should be withheld. Some physicians do not allow the patient anything by mouth for the first forty-eight hours. In such cases the patient must be given nutrient enemata at four-hourly intervals. They consist of :

Glucose	One heaped up dessertspoonful.
Sodium bicarbonate . . .	One half of a teaspoonful.
Normal saline solution . .	Half a pint.

Providing the patient has faith in her physician and in her nurse, she will usually feel quite well in a few days.

I want you to remember that a severe hyperemesis gravidarum patient is a very "ill" woman. She looks thin, anxious, and possibly a trifle yellowish. Her pulse rate may be very rapid, her skin is dry and wrinkled, and she passes very little urine. The recovery is usually as dramatic as it is complete.

The fact that hyperemesis gravidarum can usually be treated by suggestion and suitable diet does not prove that the condition is entirely due to "nerves". Two men may

pass ten public-houses on their way home from work. One may have a craving to go into every hotel, while the other may have no desire for a drink. They both arrive home without entering the public-house, but one man has had to conquer a desire, while the other man had no desire to conquer. Every pregnant woman has an inclination or a tendency to vomit. The patient who suffers from hyperemesis is, possibly through a variety of circumstances, simply like the man who does not conquer his desires, but enters the hotel and has a drink. Once she gives way she sets up a vicious circle, and the vomiting occurs more and more frequently. Much mental suffering is caused to sensitive women by a thoughtless and contemptuous attitude on the part of the doctors and nurses.

Vomiting which commences after the seventh month of pregnancy is usually much more serious, and is often associated with some severe toxæmia. Vomiting in these patients is only one of the symptoms of a severe condition.

3. Excessive Salivation.—This is a very interesting, but at the same time a very trying complaint. It is very rare. The patient is usually less than six months pregnant. Her mouth is always full of saliva which has a metallic taste. She goes about holding her husband's handkerchief to her mouth—her own is not big enough.

Treatment.—(1) Bed; (2) Free purgation; (3) Plain diet; (4) Best nightdress, etc.; (5) Firm, sympathetic handling.

If the condition does not improve rapidly she must be removed to an institution. If she is so treated the trouble will pass away. If the condition is not energetically treated it may persist until the child is born.

4. Neuritis.—The patient may complain of pain in one or more limbs, and may lose the power to use her hand or bend her elbow or even to walk. This troublesome, but not dangerous complication is not common. It does not, as a rule, occur until towards the end of pregnancy, and does not improve until the baby is born. No treatment does any good, but aspirin or some similar drug must be given to relieve the pain, and to ensure sleep. In severe cases it may be necessary to induce labour.

Although neuritis is a rare condition, "rheumatic pains", which prove very resistant to treatment are common. These pains usually persist until the child is born. They vary from day to day.

5. Pruritus.—There are two forms of pruritus, or itching of the skin: (1) Generalized pruritus; (2) Local pruritus. The generalized form is very rare, and is probably a "toxæmia" of pregnancy.

Treatment.—(1) Free purgation; (2) Three plain meals in the day.

The generalized form is very resistant to treatment. All sorts of ointments have been tried. One ointment helps one patient, while a different ointment may be of service to another. It is a very annoying condition, wears the patient out and robs her of her sleep. I need not describe the symptoms. The patient suffers what the nurse suffers from "visitors" when first she goes out on the extern department. The suffering, however, persists for weeks.

The localized form is very common, and much more satisfactory to treat. It is an irritation in the neighbourhood of the external genitals. The parts are warmer and more moist than usual. Moreover, the woman has less control of her urine—and so is constantly "wet". The parts feel hot and irritable. The woman scratches herself and makes matters worse.

Treatment:

(1) The patient should dry herself with a clean soft towel immediately after passing her water.
(2) She should bathe her parts with tepid or cold water two or three times daily, and dry herself carefully.
(3) Immediately after drying her parts, she should dust them freely with "talc" powder.
(4) If she is constantly "wet" she should wear an absorbent pad, which must be changed frequently.

The condition improves immediately.

6. Cravings.—Sometimes the pregnant woman has a desire to eat strange things. In mild cases she wants articles of diet that she usually never touches. In more severe cases

she develops a " passion " for such things as potato skins or lemon skins.

Treatment.—(1) Attention to the bowels; (2) Three plain meals in the day; (3) Firm but sympathetic handling; (4) A short holiday may prove helpful.

The Major Manifestations

In all the conditions about to be described, *Albumin is always present in the urine.*

The Kidney of Pregnancy.

One of the main functions of the kidney is to get rid of the waste products formed by the digestive and other processes of the body. As you know nephritis, or inflammation of the kidney, is quite a common illness in men, women, and even children. A woman with poor, damaged kidneys that may have been inflamed when she was a girl, may of course become pregnant. She is called a " chronic nephritic ".

A woman may have two kidneys that get rid of her waste products perfectly well until she becomes pregnant. She may think she has splendid kidneys. When she becomes pregnant they have to excrete for her and for the growing child. They may not have sufficient reserve, and so break down. A motor car may carry two passengers over hill and moor with ease. A third passenger, however, may just be too much for the car—it has not sufficient reserve power. So it is with the kidneys.

The kidneys may be perfectly healthy, and may have a great reserve in excreting power. They may, however, be poisoned by the toxins in the mother's blood, and for a short while cease to perform their duties properly. This is the true " kidney of pregnancy ". Such kidneys get perfectly well after the baby is born, and may remain perfectly healthy during subsequent pregnancies.

This is a very summary discussion of a big subject, but from the nurse's point of view it is all that is necessary.

Fortunately all these types present more or less the same signs and symptoms.

(1) They all have albumin in the urine.

(2) They all have swelling of the ankles. In some cases, more especially those suffering from the kidney of pregnancy, the face is swollen, and there is œdema of the whole body. The face may be almost double its normal size. The eyes may appear peculiarly bright, and suggest the constant presence of tears. This is called subconjunctival œdema.

The patient may suffer from (1) Headache, usually in the front of the head ; (2) Abdominal pains ; (3) Dimness of vision.

All these types of albuminuria are termed " toxæmias of pregnancy ". If she bleeds from her uterus—she is labelled " accidental hæmorrhage ". If she vomits she is labelled " hyperemesis gravidarum ". If she has fits which she otherwise would not have had, she is labelled " eclampsia ".

We need not further distinguish these conditions except to say that a woman suffering from nephritis who becomes pregnant, may have symptoms early in the pregnancy, while the true toxæmia of pregnancy does not occur until after the twenty-fourth week, and usually at a still later date.

Swelling of the ankles may be caused by (1) Pressure ; (2) Heart Disease ; (3) Kidney Trouble.

Pressure.—Pressure is by far the most common cause of swollen ankles. If you or I were to stand all day we might get swollen ankles by the evening. The pressure of the enlarged uterus makes the pregnant woman more liable to suffer. The swelling goes down during rest in bed. There is no albumin in the urine.

Heart Disease.—If a failing heart is the cause of the swelling there will probably be some albumin in the urine. The swelling may get less with rest in bed, but will not entirely disappear. The patient will be short of breath, her face will have a bluish tint, and her pulse will be rapid and probably irregular. She will prefer to rest propped up in bed.

The urine of a pregnant woman must be tested for albumin at frequent intervals. As soon as albumin is detected in the urine the doctor must be informed. All women, pregnant more than six months, who have albumin in the urine must be looked upon as possible eclamptics. If

albumin is detected in the urine a catheter specimen must be taken and examined.

Treatment.—(1) Rest in bed; (2) High enemata; (3) All food must be withheld; (4) The patient must be encouraged to drink large quantities of cold water, or imperial drink, and so wash out the poison from her system. The duty of the nurse is to see that the patient receives no food from friends. On many occasions banana skins have been discovered in the bed of a woman on water diet!

Eclampsia.

A toxæmia of pregnancy characterized by fits which would not have occurred if the woman had not been pregnant. Remember that a pregnant woman may have epileptic fits, or fits caused by digestive troubles.

This is a hideous disease, and is enough to strike terror into the hearts of all those who see it. Behold a woman about to be a mother for the first time, for it is more common in primiparæ, with a bloated, swollen face, lying unconscious on a bed. To make matters worse her lips are often swollen and covered with blood, owing to the damage caused by her teeth during the fits. See her passing into a violent and hideous fit, throwing herself about and becoming black in the face. Hear her using filthy language that she has probably never before used in her life, and remember that a large proportion of such patients die. It is truly a terrible disease, and has been known for hundreds of years. It is, moreover, a disease that should rarely, if ever, occur.

Causes.—I will not waste your time discussing theories. These are a few facts that we do know:

(1) It is more common in primiparæ.
(2) The woman usually gives a history of constipation before the onset of the trouble.
(3) It is more common in those who can afford to "eat well", but who do not place themselves under supervision. A woman is often told that when she is pregnant she must not only eat for herself, but also for the child growing in her womb. Consequently she eats well, takes milk and buns between her meals, and so gets thoroughly constipated.

Prevention :

(1) Test the urine for albumin at frequent intervals.
(2) Regulate the diet and the bowels.

Treatment :

It was found in looking through the records of the Rotunda Hospital, that an early Master of the hospital got better results than any of his predecessors or successors. He gave his patients tincture of opium.

One thing is certain, and that is that the people who treat the eclampsia, and pay no regard to the pregnancy, get far better results than those who force delivery or perform Cæsarean section and other serious operations.

(1) The patient must be kept quiet in bed.
(2) All food must be withheld.
(3) As soon as she becomes sufficiently conscious she must be given large doses of a purgative, and be encouraged to drink water.
(4) The room must not be kept too dim, otherwise the nurse will not be able to see when the patient is going to have a fit. As far as I have been able to observe, light and noises have very little influence in causing fits.
(5) The patient must be kept lying on her side so long as she is conscious.
(6) Large linseed poultices should be placed over the loins and renewed every few hours.
(7) The patient must never be left until she becomes conscious.

There is no condition in medicine that requires greater skill and attention on the part of the nurse. The patient is extremely ill, and apt to be violent and difficult to control. She is extremely liable to bed-sores, and must be turned at frequent intervals from her left to her right side. Her bony joints must be protected with suitable rings. It is an advantage to nurse her on a water-bed. Moreover, she is usually incontinent of both urine and fæces, and requires frequent changing. She needs to be catheterized with very great care every six hours.

When her face commences to twitch it is usually a warning

of a fit. Place a gag in her mouth at once. Soft cloth bound round the handle of a dessert spoon makes an excellent gag. Once the woman has clenched her teeth it is foolish to try and force the gag into her mouth. The damage is done.

Two stages can usually be observed in the eclamptic fit. At first the woman is rigid—and her back becomes arched. This is the tonic stage. A few seconds later she throws her limbs about. This is the clonic stage. During the fit her face becomes blacker and blacker, and she appears likely to die. The fit passes away. She may remain comatose until the next fit, or she may "come round" in a few minutes and be able to sip some water.

Besides putting the gag in the mouth, the nurse must pull the head of the patient, by her hair if necessary, right over the edge of the bed. This prevents her swallowing her tongue, and allows the mucus to drop on to the floor.

The doctor may wash out the stomach and the colon.

Things required :

(1) A stomach tube.
(2) A rectal tube.
(3) Mist. sennæ co.
(4) Ordinary soap solution (several gallons).
(5) Sodium bicarbonate solution. (One teaspoonful to the pint.)
(6) A large bath under the bed.
(7) Three planks—about 9 inches wide, and the length of the width of the bed.
(8) Apparatus for subcutaneous saline.

The doctor will probably give the patient an injection of morphia, and if the blood pressure is high an injection of veratrone.

All eclamptic patients should be sent into an institution at the earliest possible moment, for it is a disease which does not lend itself to treatment in a private house.

Ante-Partum Eclampsia.

The eclampsia may commence before labour commences. Indeed, in a few cases, the patient completely recovers from

her attack, goes on to full term, and gives birth to a living child.

Intra-Partum Eclampsia.

When the fit starts during labour it is termed intra-partum eclampsia.

Post-Partum Eclampsia.

When the fit commences after the placenta is born, it is called post-partum eclampsia. Such cases usually occur within the first twenty-four hours after delivery.

It is probable that all three types are equally serious.

I want in conclusion to mention the most important points in this very serious illness.

(1) In most cases the disease is preventable, and so should not occur.
(2) The urine always contains albumin, and frequently contains blood. In fact the urine sometimes appears to be nothing but blood. During the height of the attack the patient passes very little urine.
(3) The blood-pressure is usually considerably raised.
(4) The nursing requires skill and great attention to details, and should be carried out in an institution.
(5) If the fits stop, and start again some hours later, always find out whether labour is commencing, and inform the doctor. Very often, in the treatment of the eclampsia, the pregnancy is forgotten.
(6) The child is usually premature and dead.
(7) If the patient comes out of her coma, and secretes a good amount of urine, she will probably recover.
(8) Eclampsia is not likely to recur, and there is no reason why the woman should not have more children, providing the urine ceases to contain albumin.

We need not say much about Acute Yellow Atrophy. It is an exceedingly rare condition and is invariably fatal. It may occur before, or within the first twenty-four hours after delivery. The patient is deeply jaundiced, vomits, has albumin and other abnormal substances in her urine. She may have a raised temperature. Her liver shrinks in size.

She is profoundly ill. No treatment is of any avail. The disease is very similar to that caused by chloroform poisoning.

All the toxæmias of pregnancy affect the mind of the patient. She tends to be irritable, cross and unpleasant. Try and remember that you are dealing with a sick mind as well as a sick body—and great will be your reward.

CHAPTER XXIV

ABNORMAL LABOUR

We have been with child, we have been in pain, we have as it were brought forth wind.—Isaiah xxvi. 18.

It is now time to take up the subject of abnormal labour. At least 90 out of every 100 cases are normal, and yet most text-books devote three-quarters or more of their space to discussing abnormal labour.

Let me impress on you the importance of remembering the woman, and not confining your attention to the uterus and vulva. The first thing to notice is whether the patient looks ill. Not infrequently people who have had no little experience in midwifery look at the abdomen, say the case is all right, and omit to notice that the patient is profoundly ill.

If a woman looks ill the case is abnormal.

If her temperature is raised and her pulse rate fast, the case is abnormal.

If the patient has albumin in her urine, and is œdematous, the case is abnormal.

If, in the case of a primipara, the head is not engaged when labour commences, the case is abnormal.

If a multipara gives a history of a previous difficult labour, and the head is not engaged when labour commences, the case is abnormal.

If the cord is prolapsed, the case is abnormal.

If a case is abnormal a doctor must be informed at once.

Breech.

A midwife is allowed to deliver a child presenting by the breech, providing the woman is a multipara. My advice to

you is never to attempt to deliver such a case. The most difficult breech cases that I have delivered have been in multiparæ. You will lose nothing if you make it your habit to send for a doctor as soon as you have diagnosed the presentation to be a breech, you will lose a lot if you deliver the woman of a dead baby.

Diagnosis.—Always examine a patient who has booked you for her confinement when she is about thirty-six weeks pregnant. You should then discover whether the head is engaged, or whether the presentation is a breech. If the presentation is anything other than a vertex, send the woman to see a doctor. Such a diagnosis, whether at the thirty-sixth week, or at the beginning of labour, should be made by abdominal palpation.

Pawlik's Grip.—The head should be easily recognized if it is engaged in the pelvic brim. If you cannot find the head in the brim, or over the brim, feel for it in the fundus. If you find a hard, round mass in the fundus, which moves about fairly freely—it is very probably the head.

The feel of the breech in the fundus is quite distinct and sometimes, when it is difficult to make sure whether the head is lying over the brim, it is easy to make certain that the breech is in the fundus.

If you are still in doubt, watch the patient. The main question to ask yourself is: "Is the presenting part descending?" for it must be remembered that a breech presentation is quite frequently associated with some degree of contracted pelvis.

If the presenting part is well into the brim you may make a rectal examination. If you do not feel something that feels like a head, which has sutures, but instead feel something softer, you may suspect a breech. Never diagnose a breech presentation for certain, unless you can feel the bones forming the sacrum.

To sum up:

(1) See your patient at about the thirty-sixth week of her pregnancy. If you think the presenting part is a breech, send her to the doctor.

(2) If the patient is in labour and you diagnose a breech presentation, inform the doctor.

(3) It is usually easy to diagnose the presentation, but the most expert occasionally make mistakes. In any case, if there is delay in the second stage and the presenting part ceases to advance, inform the doctor.

Difficulties and Dangers of a Breech Presentation.

There are only three disadvantages as far as the mother is concerned:

(1) Some vaginal manipulations are usually necessary, consequently the patient stands a greater chance of becoming infected.
(2) The membranes may rupture at an early stage of the labour.
(3) There is a greater likelihood of the perineum being lacerated.

Dangers to the Child:

(1) Prolapse of the cord is more common in breech than in vertex presentations.
(2) The after-coming head may cause such delay that the child is born dead.
(3) The pressure on the head may cause a cerebral hæmorrhage.

Difficulties in the Actual Delivery:

(1) The legs may be extended. If the legs are extended and the baby is of average size, it is almost impossible for the child to be born without help. The breech will probably descend to the outlet, and not be able to "turn the corner" and be born. Send for the doctor.
(2) The arms may be extended. The arms as a rule remain flexed if the breech is born without help, and providing there has been no traction applied to the breech. It may be very difficult to bring down the extended arms, and in the manœuvre valuable time is often lost, which may cause the death of the child. Then, too, either an arm or a clavicle, or both, may be fractured.

Delivery of a Breech.—Masterly inactivity is one of the essentials in the successful delivery of a breech presentation. There is no need for hurry until the umbilicus is born. From that time it is only safe to rely on four minutes, in which the delivery must be completed. Let the breech be born by itself. Lift the legs over the perineum, the anterior first and then the posterior. Wait, and allow the next pain to push the child as far as the umbilicus. Now draw down a loop of the cord, and pass your fingers in to see that both arms are flexed, and through the brim. Finally seize the child by its heels with your right hand, grasp its shoulders with the fingers of the left hand on either side of the neck, and carry both your hands up towards the mother's umbilicus.

Deliver the head slowly, allowing the face, the forehead and the occiput to sweep gently over the perineum.

If the arms are extended it is necessary to bring them down.

Lift the feet up towards the umbilicus. Pass your hand between the child's body and the vaginal wall until you come to the brim of the pelvis. As there is more room in the hollow of the sacrum bring down the posterior arm first. Seize the arm of the child with three fingers, and sweep it in front of the child's face and bring it through the brim of the pelvis. Then bring down the other arm in a similar manner, and deliver the head as previously described.

It is obvious that no nurse should ever carry out such a difficult operation.

If the breech is born spontaneously, and you do not pull on the legs, but allow the uterus to expel the child, you will rarely meet with extended arms.

If you should have to deliver such a case, cleanse the vulva thoroughly, souse the parts with biniodide of mercury at frequent intervals, and rinse your gloved hands in biniodide each time you enter the vagina.

Abnormal Vertex Presentations.

Occipito-Posterior Presentations.—Sometimes the occiput lies to the back instead of the front of the pelvis. In such presentations the limbs are palpated in the front of the abdomen. The back may be to the right—(R.O.P.) or to

the left (L.O.P.). L.O.P. presentations are comparatively rare.

Treatment.—Leave the patient alone, providing the head has engaged in the pelvic brim. Most cases rotate to the front, and finish as if they had been R.O.A. presentations.

If there is delay in the second stage, inform the doctor.

Brow, Face, Transverse Lie or Shoulder Presentation.

These presentations are more common in multiparæ than in primiparæ and are usually associated with a pendulous belly. There may be a history of a previous difficult labour suggesting some degree of contracted pelvis.

Abdominal Examination.—In the case of a transverse presentation it is obvious, when you look at the abdomen, that the lie of the child is not longitudinal but transverse. By Pawlik's grip there is no presenting part to be felt, and the head may be felt in one or other loin. Later, when the membranes rupture an arm may prolapse, and perhaps the cord too.

Brow.

The presenting head feels unusually large. It is not engaged by its greatest diameter.

Hydrocephalus.

The head feels very large, and rather softer than usual. It is not engaged in the pelvic brim.

Face.

The head may be above the brim, and feel larger than usual. As a rule the face descends into the pelvis, but the second stage is prolonged. Such presentations are often born spontaneously.

As I have said:

(1) The patient is usually a multipara.
(2) She may have had trouble with a previous pregnancy.
(3) She usually has a pendulous belly. This allows the head to lie in one or other iliac fossa, instead of lying

over the brim. The head then extends when labour starts, and may present as a brow or a face, or the presentation may become a transverse.

All these cases are rare. You will not meet many in a lifetime of practice. You are not called upon to diagnose the presentation, but merely to realize that the presenting part does not become engaged. In the case of a face presentation, the second stage of labour may be prolonged.

Inform the doctor at once—do not wait until labour becomes obstructed. Beware of a pendulous belly.

Contracted Pelvis.

A contracted pelvis is one in which the pelvis is smaller than usual. There are many different types of contracted pelvis about which it is not necessary for you to know. If you see an extraordinarily small woman, or a very rickety woman, or a woman whose spine is bent, or who has hip disease, be on your guard. Send such a patient when she is about thirty-six weeks pregnant to see a doctor.

When the woman is about to start labour, or is actually in labour, all measurements, as far as you are concerned, are useless. If the head is above the brim in the case of a primipara the case is abnormal, and medical aid must be sought. If the patient is a multipara you will be able to find out whether there was any difficulty with her previous pregnancies. If there was difficulty and the head is not engaged, the case is abnormal.

If you make no vaginal examinations it will be possible to carry out the necessary treatment when the case comes into hospital. If, however, you wait and examine the patient, it will be too dangerous to carry out such a treatment as Cæsarean section when she arrives in an institution.

Prolapse of the Cord.

If the cord is lying in front of or beside the presenting part, after the rupture of the membranes, the cord is said to be prolapsed. If it lies beside or in front of the presenting part before the rupture of the membranes, it is said to be a presenting cord.

It is only on very, very rare occasions that the cord presents.

Now a cord can only become prolapsed if there is room for it to come down between the presenting part and the side of the pelvis. You may therefore have such a condition when the membranes rupture before the head is fixed. This may occur in cases of contracted pelvis, hydrocephalus and oblique lie of the fœtus. It may also occur when the presenting part is relatively small. It is therefore more common with premature infants, and in twin pregnancies. There is one other condition we will mention, and that is hydramnios. When there is an excess of liquor amnii the child floats about freely in the uterus and the presenting part does not become fixed. The membranes are liable to rupture at an unexpected time and the cord is swept down with the rush of fluid.

Now nurses have often asked me whether it is not advisable to make one vaginal examination in every case, in order to make sure that the cord is not presenting or prolapsed. The answer to that question is an emphatic "no"!

(1) To begin with, if the head is engaged it is practically impossible for the cord to prolapse. If the head is not engaged the case is abnormal.

(2) Prolapse of the cord is a relatively rare condition, and only occurs about once in every two hundred cases of labour.

(3) The child is often small and would not live for long even if born alive.

(4) Quite a percentage of the cases occur in breech presentations, and usually with small babies. The prolapsed cord does not matter much in such cases.

(5) Even if the condition is diagnosed it is extremely unlikely that a living child will be born, unless the services of a very skilled obstetrician can be obtained.

(6) If the condition is suspected the cord can be felt quite easily per rectum.

If vaginal examinations are dangerous, and they are, it is extremely inadvisable that two hundred cases should be so examined on the off-chance of finding one cord which is pro-

lapsed, especially when the chances of it being successfully replaced are so remote.

Treatment.—If the presenting part is above the brim put

Fig. 28.—The knee-elbow position.

the woman in the knee-elbow position, that is, with the patient resting on her knees and elbows with her back towards the ceiling. This position is extremely uncomfortable and undignified, and is quite useless if the presenting part is already in the brim. Send for medical help.

CHAPTER XXV

ABNORMAL LABOUR—*continued*

By her he had two children at one birth.
Second Part of King Henry VI. Act iv. Sc. 2.

"In the year 1666, in the county of Sussex, Mrs. Palmer, wife of Edward Palmer, was delivered of three sons, after being fourteen days in labour. John was born on Whit Sunday; on Trinity Sunday came Henry; and on the Sunday following, Thomas. They all lived to be very brave men, and were knighted for their exploits."—*European Magazine*, vol. 66, 1814; see also *History of Sussex*, vol. ii. pp. 141, 142, 4to, 1835 (Horsefield).

Twins.

Sometimes the woman gives birth to more than one child at a labour. Two, three, four, five and even six children may be so born. Twins are not very rare, but triplets are exceedingly uncommon. The tendency to have twins runs in certain families and appears to be inherited by the mother. The father is probably not often to blame.

Diagnosis.—The definite diagnosis of twins is not always easily made.

(1) The abdomen is usually definitely larger than usual.
(2) It may be possible to discover two heads, and a large number of limbs.
(3) Two fœtal hearts may be heard. In order for this sign to be of any value two separate observers must listen at the same time, and count the heart-beats for at least a minute. If there is a difference of ten beats between the two counts, it probably means that it is fairly safe to diagnose twins. It is not often that a diagnosis can be made in this manner.

Difficulties.—The second stage of labour is very often prolonged. There are two reasons for this :

(1) The uterus is stretched more than usual, and is consequently less able to perform its work.
(2) The uterus is working at a disadvantage when trying to express one twin by squeezing on the other !

After the first twin is born never try to hasten the delivery of the second twin. Give the uterus at least twenty minutes to contract and retract. The second twin usually presents by its head or breech and can be easily expressed. Sometimes, however, it lies as a transverse and must be turned. Occasionally the woman goes out of labour, and the second child may not be born for days.

If the second twin is born too soon after the first, the uterus will not have time to contract and there may be some post-partum hæmorrhage.

For these reasons it is necessary to inform the doctor as soon as twins are diagnosed.

Twin babies are usually relatively small, and are very often born some two or three weeks before their time.

Hydramnios.

The pregnant uterus contains a certain amount of liquor amnii, in which the fœtus can move and be protected from any jars and shocks which it might receive from the movements of its mother. The amount of liquor amnii that is present when labour begins varies, but it is usually stated that any amount between two or four pints is normal.

Sometimes there is more of this fluid present than there should be, and the condition is termed hydramnios.

Diagnosis.—The abdomen is larger than it should be, and is more round or globular in shape. If you place a hand on one side of the abdomen and flick the other side you will feel a " thrill ", that is to say, your tap is conveyed from one hand to the other through the fluid.

When you try Pawlik's grip you find that the head is not engaged, but moves freely about. In fact in some cases there is so much fluid that it is difficult to feel the parts of the fœtus, as they move about so easily.

Symptoms.—The over-large uterus presses on the stomach and intestines, and causes indigestion, sometimes described as " the water brash ". It also presses on the diaphragm and makes it difficult for the heart and lungs to do their work. For this reason the patient is short of breath, is of a dusky colour, has a fast pulse rate, and cannot lie down flat. Her sleep is often upset as she has to lie in bed propped up almost in a sitting position. She often complains of swelling of the feet, and may have albumin in her urine.

If you see such a patient during her pregnancy she should be seen by a doctor, and if possible treated in an institution. If she is seen for the first time when labour has started, medical help should be sent for at once. When the membranes rupture a large amount of fluid may gush out, and an arm or the cord, or both, may be flushed out at the same time. If, however, the membranes are ruptured artificially, and the escape of the fluid is controlled, a normal presentation may be assured.

Hydramnios is frequently associated with twins. It is also associated with maldevelopments of the fœtus—such as hydrocephaly and anencephaly.

The nurse should never rupture the membranes artificially in any case, except when the unruptured membranes appear at the vulva, and then only if the presenting part is well into the pelvis.

Primary Uterine Inertia.

Uterine inertia may be very difficult to diagnose and is a serious condition both for the mother and the child. You know that when labour commences the uterus has a very definite job of work to do. It manages as a rule to dilate the cervix and to push the child out into the world in about 100 pains. Now sometimes the uterus sets to work in a very half-hearted sort of manner, and ultimately takes about 300 or 400 pains to accomplish its task. This is called primary uterine inertia.

I want to tell you a parable. Many years ago, we read, two armies met near a brook. The leaders conferred and decided that twelve men should be chosen from either side, and that they should " play ". The twelve men from either

army rose up to play. Each man seized his fellow and killed him, and the armies dispersed every man to his tent. Twenty-four dead men were left behind !

In 1922 there was a battle of the " Four Courts " in Dublin. Large numbers of men were engaged. They made use of cannon, armoured cars, bombs, machine guns and rifles. Newspaper correspondents from all over the world watched the progress of the fight. Not one half-dozen men were killed !

Primary uterine inertia is rather like the " rising up to play battle " fought many years ago. There is no fuss made about it, there is nothing startling. Labour appears to progress normally for a while and the condition is only realized after a long delay. It is, however, a very serious condition, and the cause of many dead babies and not a few dead mothers.

Placenta prævia and other similar conditions are more startling, more like the battle of the Four Courts, but they are easily diagnosed, and their treatment is definite and satisfactory.

Diagnosis.—There are two conditions with which inertia is confounded :

(1) A minor degree of contracted pelvis.
(2) False labour.

Let me remind you again that although false labour is false, yet it often wears out the patient. Give her a good warm soap and water enema and a dose of castor-oil, and put her to bed. False pains will usually disappear with treatment.

If the head is engaged and fixed you need not be afraid of contracted pelvis.

The condition is most common in primiparæ between the ages of 35 and 40 years. Curiously enough, women of over forty usually appear to have their first baby without any trouble. A woman of a nervous, highly strung temperament is more likely to suffer than her less imaginative sisters.

The woman goes into labour and everything appears to be normal. The bowels act well as a result of the purge

and the enema. The pains appear to be strong and occur at regular and fairly frequent intervals. You may observe, by laying a warm hand on the abdomen, that the contractions are not very strong, and that the woman makes a lot of fuss about a poor pain. Labour goes on—and the baby is not born. The pains are ineffective. Under no circumstances should you make a vaginal examination. You may estimate the dilatation of the cervix by rectal examinations.

No woman ought to be allowed to remain in labour for a night and a day without sleep. If you suspect the condition send for medical help.

Treatment :

(1) Drugs such as quinine to stimulate the pains. These drugs are very powerful and must never be given except on the orders of a doctor.
(2) Morphia and scopolamine to procure sleep.

I have spent a long time discussing this condition with you, because it is so very troublesome to diagnose and difficult to treat. The woman often gets absolutely worn out and so becomes liable to post-partum hæmorrhage and sepsis. The baby is often born dead. Moreover, the patient and her relatives become very troublesome and demand that something should be done. The doctor is frequently driven to apply the forceps against his better judgment, and great damage often results. It is for these reasons that the woman should be moved to an institution.

Secondary Uterine Inertia.

Sometimes the uterus starts off with a light heart to do its work, but after some hours gets tired, and ceases to have contractions. It is like a man used to running short distances, who goes in for a three miles cross country race. After a while he gets out of breath and exhausted, and falls out of the field.

The diagnosis is easy.

Treatment.—The patient must have sleep. Secondary uterine inertia of this type is rare, and you should always get a doctor to see that everything is all right.

Obstructed Labour

Threatened Rupture of the Uterus.

We saw in Chapter X. on the mechanism of labour, that the space in the uterus gets smaller and smaller as the result of each pain. As a result of these pains the child is forced through the maternal passages into the world. Now, if it is not possible for the child to pass through these passages, one of two things must happen :

(1) The pains may cease—this is another and serious type of secondary uterine inertia.
(2) The uterus may rupture.

What, then, are the conditions that make it impossible for the child to be born ? We have discussed most of them already.

(1) Contracted pelvis.
(2) Transverse and oblique lie of the fœtus.
(3) Hydrocephalus.
(4) Tumours in the pelvis.

If you never allow a case to continue in labour if the presenting part is not well engaged in the pelvis, you will never see a case of threatened or actual rupture of the uterus.

Diagnosis :

(1) The presenting part is not fixed.
(2) The pains are very strong, and become more frequent and more violent as labour progresses. Beads of perspiration break out on the forehead, and the woman may become bathed in perspiration. Her temperature usually rises a degree or two, and her pulse rate quickens to over a hundred beats per minute. The woman looks and feels ill, and vomits frequently. The abdomen becomes hard, prominent, painful and tender. It is difficult to feel any fœtal parts. Ultimately one pain will follow another without any interval. The woman is very anxious and has forebodings of a disaster.

Send an urgent message to a doctor.

Treatment.—The patient must be anæsthetised and the obstruction removed without any delay.

Rupture of the Uterus.

These pains may cease suddenly and the woman feel comparatively well. Do not be deceived. It either means that rupture of the uterus has actually occurred, or that the uterus has gone into secondary uterine inertia.

Send an urgent message to a doctor.

If the uterus is ruptured the fœtus must be removed and the rent packed through the vagina, or the abdomen must be opened and the rent sutured. If it is a case of inertia the obstruction must be removed, or the uterus may suddenly wake up and start its violent contraction—and finally rupture.

Occasionally in the case of a multipara, the uterus may rupture without much in the way of signs or symptoms. The presenting part, even in the case of a multipara, should be fixed at least a week before labour commences. If it does not become fixed soon after labour starts, the case is abnormal.

Precipitate Labour.

Some big, healthy, strong women have their babies before they realize that they are in labour. The only disadvantage is that the infant may be born when the woman is stepping on to a tram car, or while she is in the lavatory. It follows that there is often a very severe tear of the perinæum, and that the infant may be killed by its fall. Occasionally the falling infant may pull on the cord and so cause the uterus to be inverted, or pulled inside out.

Treatment.—Get the woman to bed. Apply artificial respiration to the child and send for medical aid.

Acute Inversion of the Uterus.

This is a very, very rare accident and should never occur.

If violent efforts are made to express a placenta from a flabby uterus by Credé's method, the placenta, still attached to the fundus of the uterus, may be pushed out and so cause

an inversion. Acute inversion may in very rare cases be caused by precipitate labour.

Treatment.—Send an urgent message to a doctor. Scorch a piece of gamgee tissue in front of the fire and cover the inverted uterus with it, until the doctor arrives.

In conclusion, it is well to realize that very few cases of labour are abnormal. We have discussed a large number of conditions, and have said at the end of each abnormality, "Send for the doctor". You will not meet many such patients in your practice, although it may well happen that you may meet quite a few abnormalities within a few weeks of your starting practice. My advice to you is study normal labour, and then you will realize when things are not correct. Once you have discovered any abnormality send for medical help at once, and never make any vaginal examination. While the doctor is coming get ready a large supply of boiled swabs placed in antiseptic, together with plenty of hot and cold water.

CHAPTER XXVI

ABNORMAL PUERPERIUM OR LYING-IN

> For we have the burthen upon us, we have the burthen,
> The long, slow pain, the sorrow of going, and the parting.
> O little hands, O little lips, farewell and farewell.
> Bitter the sorrow of bearing only to end with the parting.
> "The Rune of the Sorrow of Women."—Fiona Macleod.

We will not spend much time discussing abnormalities of the puerperium. At least 98 per cent of normal cases ought to have an absolutely normal puerperium. If the temperature rises to 100·4° and remains at or above that level with a quickened pulse for twenty-four hours, the midwife is bound to notify the proper authorities. That is to say, that the pulse and the thermometer are reliable guides as to whether things are normal. Out of about 1200 normal confinements at the Leeds Maternity Hospital, during the year 1925, only 12 cases would have had to have been notified by a midwife.

I need hardly remind you that the patient is still a woman, and is capable of having illnesses altogether apart from the pregnancy. The heightened temperature may be due to tonsillitis, rheumatism, cystitis, or even such diseases as typhoid fever and measles. It is a safe rule, however, always to assume that any rise of temperature is the direct result of the confinement.

Clearly the parts from which we can expect trouble are :

1. The perinæum.
2. The uterus and its surroundings.
3. The breasts.

Perineum.

If the perineum has been lacerated and sutured it may break down, with the formation of pus. Fortunately, this does not often occur. The doctor may order all the sutures to come out immediately, or he may allow them to stay in for a little longer to see whether the condition will improve. If you cannot, for any reason, get the doctor's advice, it would be advisable to take the stitches out immediately.

Treatment :

1. Remove the stitches.
2. Paint the perineum with iodine.
3. Dust the parts with iodoform powder. This serves to hide the unpleasant odour which is certain to be present.
4. Be very insistent that the woman sits up as much as possible.
5. Fomentations, frequently renewed, are very helpful.

Never Douche the Vagina.—It will only carry the infection up to the uterus.

The temperature is very characteristic :

1. It rises gradually.
2. It tends to be higher in the evening than in the morning.
3. It tends to fall gradually.

Perineal Ulcer.

This evidence of bad midwifery is fortunately but rarely seen nowadays. The ulcer is large, of a greyish colour, and tends to spread up the posterior wall of the vagina.

Treatment.—The same as for a "broken down" perineum.

Occasionally the parts are so damaged that a false passage is made connecting the bladder and the vagina, or the rectum and the vagina, so that urine or fæces come out through the vagina. Such false passages are called "fistulæ".

Vesico-vaginal, or recto-vaginal fistulæ, as they are called, occur as a rule only after obstructed labour requiring instrumental delivery.

Breasts.

The onset of milk does not occur until about the third day of the puerperium. The breasts often become hard, engorged, knobby or tender, but there should be no rise of temperature. In other words, there is no such thing as " milk fever ".

Mastitis or Inflammation of the Breast.—Mastitis is always the result of an infection by bacteria. They usually get into the breast through a cracked nipple. The commonest time to expect trouble is about the fifth or sixth day of the puerperium.

The temperature rises suddenly from normal to about 102° or 103°. The pulse rate increases from about 80 to 110. The woman complains of pain, usually in one breast.

If you examine the breast you will often be able to see a pink area, wedge shaped, with the point towards the nipple. The area is not only pink in colour, but is raised, hot and tender. It usually occurs on the outer and upper portion of the breast.

Treatment :

1. Apply hot fomentations four-hourly.
2. Apply a tight binder round both breasts.
3. Give a large dose of mist. sennæ co.

If you carry out this treatment immediately and thoroughly, the temperature will always come down within twenty-four hours and the breast will get quite well. There is no reason why the baby should not suckle the breast if a nipple shield is used. I have never seen a case of mastitis, which was so treated, that did not respond to treatment immediately.

Caution.—Do not apply the fomentation too hot.

If mastitis is not treated immediately an abscess may form. The temperature will keep high, the pain will be severe, and the breast will have to be incised.

The doctor may give a sub-mammary saline to a patient who has lost a lot of blood.

If every precaution against sepsis is not taken, an abscess may form where the saline is introduced in cases of hæmor-

rhage. The needles should never be introduced into the breast tissue, but be inserted into the loose tissue between the ribs and the breast.

Nervous Temperatures.

Providing the labour was short and uneventful, a rise of temperature on the first day of the puerperium is of no importance. It is usually described as a " nervous temperature ".

Visitors may bring bad news to a patient, or excite her with stories of family quarrels. Bad news may cause a rise of temperature. If the temperature does not come down by the morning, it was probably caused by something other than the bad news.

Cystitis.

Occasionally a woman gets an infection of her bladder. Pus is passed in the urine. She complains of a dull aching pain over her bladder region which is worse when she passes her water. This infection is usually caused by the bacillus coli, one of the organisms which live in the bowel. Cystitis occurs more frequently in those patients who have been catheterized a number of times. Carelessness in this operation may cause the infection, but it is more than probable that the trouble is more often caused by failure to pass the catheter sufficiently often. The bladder becomes over full and the decomposing urine damages the stretched walls. If the woman is being catheterized she should be catheterized at least once every six hours. If the amount of urine withdrawn is considerable, the catheter must be passed every four hours.

Treatment.—There will be a rise of temperature, and you must inform the doctor. Encourage the patient to drink as much as possible. Imperial drink, or some form of lemonade, is probably the best fluid to provide. Fomentations or cold compresses placed above the pubes will relieve the pain. If the baby is three weeks old the woman should be encouraged to lie in a warm bath as frequently as possible. No local treatment should be considered while the condition is acute.

Pyelitis.

We said that pyelitis occasionally occurred during pregnancy. It may also occur during the puerperium, but is not common.

Puerperal Infection.

Over a thousand women die in England and Wales every year as the result of puerperal sepsis. At least three thousand women become infected each year in the same area, and escape in the mercy of Providence. A still larger number of women receive some slight infection, and suffer some inconvenience for the rest of their lives.

Nobody knows how to cure a woman suffering from sepsis, but throughout this book we have insisted on the necessity for preventing this terrible scourge.

I will briefly describe to you the various types of infection.

1. Sapræmia.—In this condition it is supposed that the organisms are feeding on the lochia and other substances pent up in the uterus and vagina. The patient may complain of a headache, and feel unwell.

The temperature and pulse rate are moderately raised.

The lochia is usually copious and offensive.

The condition will not occur if the patient is made to sit up in bed from the first day, and is well purged.

Treatment :

1. Sit the patient up in bed, and if necessary sit her on a chair for a quarter of an hour, each morning and evening.
2. Give two ounces of castor-oil, followed by an enema if necessary.

There is no reason to assume that retained membranes will of necessity cause a sapræmia. Retained membranes rarely cause any trouble.

2. Septicæmia.—A sapræmia may become a septicæmia. The organisms, instead of resting content with the pent up lochia, enter through the uterus and actually grow in the blood stream.

Like the man-eating tiger, they change their food through

force of circumstances. The septicæmia, however, more usually begins as a septicæmia.

Symptoms.—A whole list of symptoms is usually given in text-books. In my experience it is very difficult, if not impossible, to diagnose a true septicæmia in its early stages, without taking a blood culture to see whether organisms are growing in the blood.

Such patients may complain of headache and insomnia, but I have never known a patient bothered with these symptoms. They usually feel extraordinarily well, and say they " feel grand ". If a patient is running a high temperature and a high pulse rate, and says she feels grand, then she is almost certainly septic, and will probably die.

The tongue is the other great signal. A nasty dry, dirty brown tongue, which cracks and becomes very painful, is a very serious warning of a severe sepsis.

The lochia is said to " dry up " in these cases and be very scanty. This is not always true, and some of the most severe cases have apparently normal lochia.

The uterus tends to remain bulky.

The abdomen is never hard, or tender, or painful, but may offer a boggy resistance when there is a peritonitis. Puerperal peritonitis is silent, and absolutely different in onset and symptoms from the condition with the same name encountered in general surgery.

The temperature usually starts to rise about the third day, and tends to be higher in the evening than in the morning.

The pulse rate usually follows the temperature and moves up and down with it. When the temperature tends to come down, and the pulse rate to increase, the lines plotting the temperature and pulse rate on the chart tend to meet and cross. This is termed " the sign of the cross " and always means death.

In any case it is not for you to diagnose the condition. The temperature will be raised, and the case will have to be reported, and medical help obtained.

The condition should never occur. Never make a vaginal examination, and always beware of pus which may be present in any part of the patient's body.

Duties of the Nurse.—The case must be reported to the proper authorities. The nurse must not attend any other case until she has obtained permission. She should disinfect her body in a carbolic bath, and see that all her clothes are disinfected.

Treatment.—Nothing can be done except to put the woman in the best possible condition to fight the battle for her life. The following are the most important points :

1. Fresh air and sunshine are probably more important than anything else.
2. The determination to live.

In the East it is apparently possible for a man to decide to die, and to sit down and die. The determination of the patient to live is a most important factor in such a case. I remember a patient riddled with sepsis who said, " The nurses say I am going to die, but I won't go to Heaven with a dirty mouth like this ". She fought out that infection, from which others would have died in a few days, for eight weeks, and died from exhaustion. Encourage your patient, and learn a lesson from the careless nurses who discussed the patient within her hearing.

3. Plenty of good nourishing food helps the patient to put up a good fight. A tonic may be of help. If the patient fancies stout or beer it may do good, but never encourage a puerperal woman to take alcohol in any form. She may acquire a bad habit.
4. Keep the bowels well regulated.

The mouth becomes very dry and often ulcerated. Wash it out with weak hydrogen peroxide solution several times in the day. Cleanse the mouth after each meal. One teaspoonful of acetic acid in a pint of water makes a pleasant mouth wash.

The patient may die in a few days, or may last several weeks. A cheery optimism, fresh air and good nursing are of more value than all the thirty or forty drugs, suggested for the treatment of sepsis, put together.

Acute Venous Sepsis or Pyæmia.

This type of sepsis is less common and commences any time up till the twenty-eighth day, and usually after the tenth day of the puerperium.

It is characterized by rigors and a swinging temperature. During and for some time after the rigor the patient feels extremely ill. In between the rigors the woman feels quite well. The rigors may occur twice daily, or may be separated by intervals of 24, 36 or 48 hours. The condition is very severe, and frequently fatal.

The prevention and treatment are the same as for the ordinary form of sepsis. The surgeon may consider tying the pelvic veins, or performing a hysterectomy.

Parametritis.

The infection may be localized in the parametric tissue, and the woman is then said to be suffering from a parametritis. Pus may form and point over the lower part of the abdomen.

The condition is characterized by a swinging temperature and by aching pain in the lower part of the back. The patient feels well, but gets worn out from the long illness. An operation to evacuate the pus is frequently necessary. The woman usually recovers, but walks with a stiff gait and suffers considerably, especially during her menstrual periods.

White Leg or Phlegmasia Alba Dolens.

The pelvic veins occasionally become infected and the veins of one or both legs become involved.

The leg swells, becomes white, and is tender as well as painful. The trouble commences any time between the sixth and twentieth days of the puerperium.

The temperature and pulse rate become raised.

White leg is a mild form of the condition which causes acute venous sepsis.

Always inform a doctor of the condition. The case must be notified.

Treatment :

1. Cover the affected limb with a thin layer of cotton wool.
2. Place the limb on pillows so that the heel is at a higher level than the thigh.
3. Protect the leg from the weight of the bedclothes by using a cradle.
4. If any part of the leg is particularly painful, apply a fomentation. Fomentations should not be continued, as the skin over a knotty vein is thin and may become very sodden. Painting the area with tincture of iodine is often useful. Some people cover the whole leg with glycerine and ichthyol (10 per cent). It makes a mess, and does not appear to do much good.
5. Keep the bowels well regulated.

The patient must not be allowed up until the temperature has remained normal for three weeks.

Puerperal Insanity, Mania and Melancholia.

A woman's mind may become unhinged during pregnancy, labour, or the puerperium, but more commonly after the birth of the child. She may become maniacal and require several nurses to control her. The condition frequently commences by the woman imagining that her neighbours are accusing her of bearing an illegitimate child, or of suffering from gonorrhœa or syphilis.

Sometimes she becomes very depressed and is often worried about her soul. She is then said to be suffering from melancholia.

If there is insanity in her family the prognosis is very bad. If the family history is good, she will probably get well sooner or later.

Sensitive, highly-strung women are usually the ones to suffer. The condition is often preceded by worry and sleeplessness. A long, trying labour is often the last straw that precipitates the trouble.

Never allow a woman to go through a long labour with-

out sleep, and always see that she sleeps well during the puerperium.

When the woman is definitely afflicted inform the doctor. Do not bully her, or try to hold her down. Merely control her movements, so that she cannot harm herself. She often infects herself by handling her external genitals.

Occasionally such patients get quite well after one big dose of morphia or scolopamine, more often they have to be transferred to an asylum.

I know of nothing more tragic in this world than to see a young mother, very often a delicate refined woman, behaving indecently and shrieking obscene language. The tragedy is only heightened when one realizes that such a patient is often made worse by having to be in close proximity with definitely insane persons in the lunatic wards of our poor law institutions, before being transferred to an asylum. One only hopes that different arrangements will be possible in the not far distant future.

CHAPTER XXVII

COMMON AILMENTS OF THE BABY

A grievous burden was thy birth to me
Tetchy and wayward was thy infancy.
Richard III. Act iv. Sc. 4.

As looks the mother on her lowly babe
When death doth close his tender dying eyes.
King Henry VI. Act iii. Sc. 3.

I WILL now discuss with you a few of the troubles which may afflict the infant. By far the greatest number of evils affect some portion of the alimentary canal.

A healthy baby looks well, has a bright face with clear eyes, sleeps well, suckles well, kicks well, lies with the palms of its hands open, and cries well if provoked.

An ill baby looks ill, its eyes are not bright, nor do they remain wide open, and its face may have a greenish or yellowish tint. The baby may remain alarmingly quiet, may utter weak cries, or may scream with pain and draw its thighs up to its abdomen. The fontanelle may be bulging or depressed, and the hands are usually clenched.

You must learn to detect the first signs of disorder merely by the appearance and behaviour of the baby. The longer the delay before treatment is commenced, the less likely will the baby be to recover.

1. VOMITING.—The baby often swallows mucus and blood while it is being born. This irritates the stomach and causes the baby to vomit. In the vomit is mucus, streaked with bright blood.

Treatment.—Keep the baby quiet. Give it plenty of water from a bottle. It is usually quite well in forty-eight hours. The doctor may wash out the stomach.

2. Posseting.—A greedy baby possets. It takes too much at a feed, and brings back some of the milk immediately it has finished suckling.

Treatment.—Do not let the infant stay so long at the breast.

3. Gastro-intestinal Vomiting.—When the alimentary canal is upset the baby may vomit as well as suffer from diarrhœa. There is a type of projectile vomiting associated with a very rare condition known as congenital pyloric stenosis.

Constipation.

Babies occasionally suffer from constipation. Give such babies plenty of water. If a baby fails to pass a stool, hold it over a chamber and squeeze warm water from a sponge over its abdomen. This often works like a charm. If, however, it fails, pass a piece of soap a little thicker than a slate pencil and about an inch long into the rectum. Wet the soap with warm water, and pass it very carefully. When the baby becomes older it may be necessary to give it regular doses of liquid paraffin.

Flatulence or Wind.

Babies, whether fed on the breast or on artificial foods, often suffer from flatulence, which makes them cross and causes them to cry. See that they do not feed too greedily and swallow air. This trouble often affects strong babies, and may be avoided by adopting the four-hourly interval. A grain of sodium citrate given after each feed may be necessary. When the baby is afflicted it must be laid on its abdomen and gently patted on its back. It is a good plan to carry such a baby round the room over one's shoulder.

Thrush.

Little white spots may appear on the inside of the infant's mouth. These spots are the size of a pin's head and are raised. They are a form of mould—similar to that which grows on damp boots. Dirty nipples are the common cause.

Treatment.—Cleanse the mouth before and after feeds with a small piece of clean linen. The little spots will not "rub off" easily. Give a saltspoonful of glycerine and borax after each feed. See that the mother's breasts are thoroughly cleansed before and after suckling the infant. Give a teaspoonful of castor-oil.

Jaundice.

A baby may become yellow, or jaundiced, the second or third day after its birth. Sometimes the jaundice is very deep. Jaundice either means nothing or is fatal. I mean by that statement that all the treatment necessary is to give plenty of water, and perhaps a teaspoonful of castor-oil. Occasionally, however, the jaundice is caused by a badly-formed liver, or by umbilical sepsis. Such cases always die.

Sclerema.

Occasionally a baby appears to be doing well for the first few days. It is then noticed that the muscles of its calves are "hard". The thighs then become hard—and then the face. The baby bleeds from its nose and dies, hard all over.

This condition, which is not at all uncommon, is called sclerema, is more common in premature children and in those born of toxæmic parents, and can be prevented by giving the infant plenty of fluid, especially water. It is precisely the babies that cause a lot of trouble with their suckling that die in this manner. Once the legs become hard it is almost impossible to save the baby. The damage is done. Inform the doctor at once—but prevent the condition by giving plenty of water to all babies.

Green Stools.

Green stools always mean infection. Provided the condition is treated at once the baby soon gets well. If the green stools are allowed to continue—the condition becomes difficult to cure.

Treatment.—Withhold all food. Give the baby plenty of water, without any sugar, out of a boat-shaped bottle. Give :

1. One teaspoonful of castor-oil.
2. Grey powders (Hyd. cum creta gr. $\frac{1}{4}$) four times daily.
3. Olive-oil—a teaspoonful three times a day.

Pump the mother's breasts so that they do not become painful.

It is not advisable to keep such a baby on water for more than twenty-four hours. If the stools are not normal by that time give the baby the " top of the gruel " out of a boat-shaped bottle (see Chapter XVII.). When the stools become normal give two parts of gruel to one part of pumped breast milk, then one part of gruel to two parts of milk, and finally get the baby back to the breast. Water given in time saves many a green stool.

The condition may become very grave. The infant may suffer from vomiting, diarrhœa, abdominal pain, which causes it to cry and draw up its legs, and have a high temperature. Such cases must be seen by the doctor at once and require energetic treatment. If ordinary green stools persist for more than twenty-four hours, it is advisable to inform the doctor.

Malæna Neonatorum.

This is a condition in which blood appears in the stools. It is usually first noticed about the third day. The blood may be " tarry " or of a bright red colour. The baby looks pale, lies very still and does not cry.

Treatment.—Keep the baby warm and still. It must not be moved out of the cot for anything. The napkins must be changed in the cot and saved for inspection. The doctor must be summoned immediately. The baby's life depends on a dose of whole blood or serum injected subcutaneously. Give nothing but water.

If the baby is a girl the blood may have come from the vagina and not from the bowel.

Convulsions.

Convulsions are not uncommon in very young babies. They are caused by :

1. Cerebral hæmorrhage.
2. Indigestion.

Send for a doctor at once, and keep the baby absolutely quiet in its cot in front of the fire. Do not attempt to bath the infant.

Cerebral hæmorrhage may follow a normal labour, but is more common after a forceps or breech delivery. It may be associated with a palsy of one or more limbs, and one side of the face is usually less wrinkled than the other.

The anterior fontanelle may be tense and bulging. The infant may cry at frequent intervals.

Treatment.—(1) Warmth. (2) Absolute quiet.

The doctor may perform a lumbar puncture.

If the child becomes blue, has a marked convulsion and remains breathing rapidly with a catch in its breathing, the fit may be due to indigestion.

Treatment.—(1) Warmth. (2) Absolute quiet. (3) Withhold all food.

The baby will probably recover in a few hours.

If the child is several weeks old it may be put into a warm bath, and then put quietly in its cot. At a later date convulsions are often the first warning of some disease.

Intertrigo or Napkin Rash.

The commonest rash, if rash it can be called, is sore buttocks. Sore buttocks are caused by:

1. Offensive stools.
2. Wet napkins.
3. Soda in the water in which the napkins are washed.

The rash affects the buttocks and does not extend beyond the area covered by the napkin.

Treatment.—Remove the cause. Cover the buttocks with sterile vaseline or zinc ointment.

Serum Rash.

If serum is given to the baby it may develop an ordinary serum rash which covers the body.

Flea Bites.

Cause raised red areas, with minute holes in their centres, and are often mistaken for some disease.

Heat Rash, Gum or Strophulus.

If the baby is too warmly clothed, or too closely nursed, the part affected becomes covered with bright red pimples, each the size of a pin's head and crowned with a yellow crust. The condition is often associated with digestive disturbances.

Treatment.—Remove excessive clothing. Allow fresh air, and see that the blankets do not touch the face. Give a teaspoonful of castor-oil, and some grey powders.

Quite commonly the baby kicks a piece of skin off the inside of its ankle or heel. Cover the area with calamine ointment, and apply a bandage so that further kicking will do no harm.

Eczema.

Eczema occasionally affects the faces of babies when they are about six months old. The condition tends to persist for many months. It may be of the dry or wet variety. No treatment seems to be of any avail. Beautiful, healthy-looking babies appear more likely to be affected. The condition is very trying to the mother, but eventually clears up, although often not until after the first teeth have been cut.

We will talk about the rash due to syphilis in the chapter on venereal diseases.

Bronchitis.

This is the only acute condition that commonly attacks a child in the first year of its life. It may commence with a convulsion. The breathing becomes rapid. The temperature is raised. The child is obviously ill. Send for the doctor at once. It is a very fatal disease, as it tends to become a broncho-pneumonia.

Sepsis.

In the olden days the umbilical cord often became septic. A septic cord may bleed any time after the sixth day, or it may become surrounded by a bright red area of skin. The condition is very dangerous, and is one of the causes of a fatal type of jaundice.

Treatment.—Send for the doctor at once. If the cord is bleeding it must be re-tied, and if necessary under-pinned. The only other thing that can be done is to give the baby a dose of anti-streptococcus serum. Umbilical sepsis should never occur.

Pemphigus.

This is a septic rash which affects babies, and usually appears during the first week. It is caused by dirt, and is highly contagious. The infection comes either from the mother or the nurse. Dirty hands, septic fingers, long dirty finger nails, and carelessness in changing and bathing the baby, are the probable sources. The rash starts with a raised red spot. This spot enlarges until a blister forms, which increases in size, sometimes with astonishing rapidity, and becomes filled with a thin yellowish fluid. The spot often starts on the baby's face or arm. Other spots appear, and develop in the same way. The rash never affects the palms of the hands or the soles of the feet. The condition is dangerous, as quite a number of the babies affected die. Send for the doctor at once.

Treatment.—The blister should be pricked and some mercury ointment rubbed into and around the affected area, which should be covered with a bandage. If a large area of skin is involved the baby should be held in a warm bath containing three or four ounces of magnesium sulphate. The baby should be left in the bath for as long as possible, and the bath should be repeated several times in the day. The nurse must wear rubber gloves whenever she handles the baby. Anti-streptococcus serum in 10 c.cm. doses should be given. The nurse should under no circumstances attend any other baby or confinement, until she receives permission from the local supervising authority.

This dangerous rash has been reported from several maternity hospitals lately. It is due to carelessness and dirt, and spreads very rapidly amongst the babies. The condition is rarely encountered in private practice.

There is a type of pemphigus caused by syphilis. It attacks both sides of the body in a symmetrical manner, and affects the palms of the hands and the soles of the feet.

Marasmus.

When a baby gets thinner and thinner in spite of taking its feeds, it is said to be suffering from marasmus. In a large number of cases marasmus simply means unsatisfactory feeding.

The subject is more fully discussed in the chapter on venereal diseases.

Umbilical Hernia.

There is often a protrusion in the region of the umbilicus. Unless it is very marked it can be cured by strapping the skin over the protrusion, using some adhesive plaster. It is essential in such cases to see that the child can pass its water freely. A tight foreskin and constipation make the hernia worse.

Nævus.

Birth marks of various colours and sizes are quite common. If they are of any size, or are situated on the face, they should be reported to the doctor and removed.

There are several so-called birth injuries, but as they practically never occur, except as the result of operative interference, we will only just mention them:

1. Depressed fracture of the skull.
2. Facial palsy.
3. Fracture of the clavicle or humerus, and less often of the other bones of the body.

Cephal-Hæmatoma.

A *caput succedaneum* often forms over the area of the child's head which lies over the internal os. It disappears within twenty-four hours. Sometimes a swelling is found on the child's head which does not disappear. It rarely, if ever, goes beyond the limits of the bone over which it lies. It is tensely cystic, and is due to an effusion of blood under the scalp. The swelling will disappear in about a fortnight and should be left alone. It is called a cephal-hæmatoma.

Mastitis.

Occasionally the breasts of a baby, be it a boy or a girl, swell and even secrete milk. Officious people squeeze and rub them until an abscess forms. Cover them with a piece of wool and leave them absolutely alone.

Malformations and Maldevelopments.

Several forms of monster are born, fortunately they are usually stillborn, or die soon after birth. Hydrocephalus and anencephalus are the two forms most commonly encountered.

Hydrocephalus.

This means that the skull is large and contains a lot of fluid.

Anencephalus.

In this condition the vault of the skull is missing, and there is very little brain tissue present.

Important conditions to recognize are:

1. Imperforate Anus.—There may be no anus present, or it may be covered with skin. If the child does not pass meconium examine the anus and see whether it admits the tip of the little finger.

2. Club Foot.—A baby with any maldevelopment of its feet or limbs should be sent through the doctor to an orthopædic surgeon at the earliest possible date. Corrections can be made that will be difficult or impossible after a delay of even six months.

3. Hare Lip and Cleft Palate.—The cleft palate may make it impossible for the child to suck, and it will have to be fed with a spoon. Some surgeons like to operate on such cases before the child is a week old.

4. Tongue-tie.—Tongue-tie causing any disability is an exceedingly rare condition, but it does exist. The little band is easily divided with a pair of scissors, and the bleeding is stopped by a cotton wool swab. The operation must of course be done by a doctor, but is practically never necessary.

5. Spina Bifida.—In this condition a part of the spinal cord or its coverings protrudes through a badly developed vertebral column. Cover the area with a piece of linen scorched in front of the fire and inform the doctor immediately. An operation is sometimes performed on these babies, but, even if it is successful, there is a strong probability that the child will die a year later with hydrocephalus.

6. A Tight Foreskin.—A tight foreskin never makes it impossible for the child to pass water. It does, however, very occasionally cause urine to be retained round the glans which causes an inflammation and swelling of the penis. We have already seen that it is also one of the causes of sore buttocks and cross babies.

You should notice if the foreskin is tight, and you may be able gently to pull it up a little each day after bathing the infant. If the condition is very marked inform the doctor. He will either dilate it up with forceps or circumcise the child. If any swelling of the penis occurs, fomentations should be applied on the doctor's orders.

CHAPTER XXVIII

VENEREAL DISEASES

Be not deceived; God is not mocked: for whatsoever a man soweth, that shall he also reap.

For he that soweth to his flesh, shall of the flesh receive corruption; but he that soweth to the Spirit, shall of the Spirit reap life everlasting.—GALATIANS vi. 7 and 8.

THERE are two venereal diseases commonly met with in this country. They are syphilis and gonorrhœa. Both diseases are usually conveyed by impure sexual intercourse.

SYPHILIS

If a person has a scratch on the lip, the chancre may form there as a result of a kiss from an infected person. What is of much more importance is the fact that doctors and midwives may, if they have a scratch on their fingers, become infected with syphilis through making a vaginal examination on a syphilitic patient.

Symptoms.—The disease may be divided into three stages:

1. Primary.
2. Secondary.
3. Tertiary.

Primary.

The patient develops a chancre or hard sore at the place where she is inoculated or infected. This place is usually some portion of the vulva.

Secondary.

After four to six weeks the patient may have:

1. A rash.
2. A sore mouth and throat.
3. A temperature associated with malaise.

Tertiary.

All sorts of terrible troubles may arise many years after the disease has been acquired. The worst of these troubles are those affecting the brain and spinal cord.

As a result of these diseases women may become paralysed and ultimately die in a lunatic asylum.

The Wassermann Reaction.—By examining a specimen of blood from a patient it is usually possible to say whether or not she is syphilitic.

The vast majority of mothers who are syphilitic do not give any history of chancres, sore throats or rashes. They have become infected by husbands in the tertiary stage of syphilis.

The fact that they are affected with the disease is only proved by the history of their pregnancies, and the Wassermann reaction.

A syphilitic mother may have several miscarriages or still-births before giving birth to a living child. Syphilis and nephritis are the two common causes of miscarriages and still-births, but whereas the mother suffering from nephritis has less chance of having a living child with each succeeding pregnancy, the mother infected with syphilis always has a better chance with each succeeding pregnancy, of giving birth to a living child.

If a woman has more than one miscarriage without giving birth to a full-term child, she should be sent to a clinic where her blood may be tested.

If the Wassermann reaction is positive, both she and her husband should attend the centres for the appropriate treatment.

If the Wassermann reaction is negative and the woman has repeated miscarriages, the blood from her husband should be tested. If this blood gives a positive Wassermann reaction, both husband and wife should undergo the usual treatment.

The Syphilitic Child.

The sins of the fathers and mothers are indeed visited on the children, for syphilis is inherited, and few children of infected parents escape some disabilities.

Syphilis may kill the child :

1. In the womb.
2. Shortly after birth.

Syphilis may not manifest itself until the child is about six years old, when it may have trouble with its eyes.

Syphilis may not affect the child until he becomes a man, when he may acquire an aneurism, or other troubles.

Syphilis may cause a horrible form of paralysis and insanity to develop in a child so infected.

A high percentage of the population of the civilized world is affected with syphilis. The tragedy of the disease lies in the fact that innocent women and babies are the ones who suffer most. There is only one sure way in which this disease can be stamped out, and that is by the practice of the Christian virtue of purity. Once the disease is acquired, the sufferer must attend some clinic and undergo treatment, which consists largely of the intravenous injection of some arsenic compound, together with mercury given by the mouth, until she is cured.

We will just consider a few points about the syphilitic baby.

When born the baby appears to be quite well. It is only very rarely that a baby dies within the first few days of its life from syphilis.

There are many signs, such as the bossing of the parietal bones, and the enlarged spleen by which such a baby may be recognized, but I want to discuss only those things which a nurse can easily recognize.

1. Snuffles.—The child may have a yellow discharge from its nose causing it to snuffle. The symptoms may commence at the end of the first week. Snuffling does not always mean syphilis. If the condition is caused by this disease it means that the bones supporting the bridge of the nose are involved. The bridge of the nose becomes very depressed.

Treatment.—1. The baby must be taken to a clinic and be given anti-syphilitic treatment. The father and mother must also undergo the same treatment.

2. Wipe out the nostrils with pledgets of wool and warm water at least twice daily. Apply a little vaseline on the tip of a feather inside each nostril.

The discharge tends to cake round the nostrils and cause nasty sores and a cracked lip. Cracks and sores form round the corners of both lips and are described as rhagades.

2. Rash.—A rash of any shape or colour may occur on any part of the child's body. The rash is usually evenly distributed on both sides of the body.

By far the most common rash is that which affects the buttocks and thighs. It is of a coppery or ham colour, and may at first be mistaken for the ordinary intertrigo or sore buttocks. Unlike sore buttocks, in which only the area of skin covered by the napkin is affected, the syphilitic rash extends down the thighs and even to the ankles.

Treatment.—Anti-syphilitic treatment.

3. Pemphigus.—In another chapter we discussed the form of pemphigus caused by an infection. Pemphigus is sometimes caused by syphilis. The blisters form symmetrically on either side of the body, and affect the palms of the hands and soles of the feet.

Treatment.—1. Anti-syphilitic treatment.

2. Puncture the blisters. Rub in mercury ointment. Apply bandages. Always wear gloves when touching such a baby.

4. Marasmus.—If a baby takes its food and has no apparent disorder of its intestinal canal, but continues to lose weight, it is said to be suffering from marasmus. We have said elsewhere that the term marasmus is very often a cloak to hide bad feeding.

A true marasmic baby takes its feeds well, even greedily. The stools are normal. The baby, however, often cries at night for no apparent cause. Night crying is a well recognized symptom associated with syphilitic babies. The face becomes wizened, and like that of an old man.

Treatment.—Energetic anti-syphilitic treatment.

If there is reason to suppose that a pregnant woman is infected with syphilis, use all your powers to persuade her to attend a clinic for treatment without delay. The sooner she receives treatment, the better are the chances for the infant.

Gonorrhœa

Gonorrhœa is not considered such a serious disease as syphilis, but it is a very crippling disease, and is very difficult to cure.

The disease may be acquired by sitting on the seat of a water-closet on which there is some infective matter. Women occasionally catch the disease by using infected towels in a public lavatory. Impure sexual intercourse, however, accounts for more than 99 per cent of cases.

Gonorrhœa in Women.

Symptoms.—The urethra or water passage is the part which is usually first affected. The patient suffers a scalding pain when passing her water.

The organism which causes the disease is called the gonococcus. It hides itself underneath the lining membrane of the cervix, and causes an offensive vaginal discharge. The disease then becomes extremely difficult to cure.

The acute stage lasts some days and the disease then becomes chronic. Amongst the troubles that follow in the train of the infection are :

1. A nasty yellowish mattery vaginal discharge.
2. Sterility.
3. Salpingitis, or inflammation of the tubes, and pus tubes.
4. Arthritis.
5. Warts.

These horrible wet warts grow in large numbers all round the anus and those parts of the buttocks which touch each other. They must be removed, and painted with some solution like iodine. You must know, however, that gonorrhœa, although it is the commonest cause, is not the only cause of these warts.

The baby does not inherit the disease as in the case of syphilis. As the child is being born, however, the pus in the vaginal discharge may get into the eyes of the child and set up an inflammation called ophthalmia neonatorum.

Ophthalmia Neonatorum.

The severe type of this disease is nearly always caused by the gonococci, and can always be prevented by seeing that a drop of one per cent silver nitrate enters each eye within an hour after the birth of the child.

Symptoms.—One eye is usually affected first. The eyelids swell, and become inflamed. Pus at first pours out, but later it tends to become pent up behind the swollen lids. The pus is thick, of a yellow colour with a green tinge.

The case must be notified to the proper authorities without delay.

The pus from the eyes is extremely infectious, and the other eye of the child, in spite of all precautions, nearly always becomes infected. If any of the pus gets into your eyes, or the eyes of anybody else, the same inflammation will occur.

Treatment.—The child must receive expert treatment at once, preferably in a hospital.

1. *Silver Nitrate Solution* (2 per cent) should be dropped into both eyes morning and evening.
2. The eye should be thoroughly irrigated with normal saline solution every hour. A glass irrigator should be used. When only one eye is involved, the child must be turned so that the fluid runs down over the cheek of the affected side, and not up towards the nose.
3. The eye should be bandaged. Hot fomentations, changed at frequent intervals, may be used to relieve the inflammation.
4. The sound eye should be protected with a pad and bandage.
5. The hands of the infant should be bandaged so that they cannot become infected.

A high percentage of the inmates of our blind asylums

were made blind at birth. Those who are "born blind" to-day will arrive at the asylum through the guilt of their parents and the carelessness of the attendants at their birth.

The C.M.B. Rules require that you :

Inform the doctor as soon as you discover any sores on the generative organs of a patient, or notice a mattery discharge from the vagina. The doctor must be informed if you find either or both conditions at any time during the pregnancy, or during the labour.

You must wipe the eyelids of the baby as soon as the head is born, and before the eyes are opened.

If the baby has inflamed eyelids, or a discharge from the eyes, a doctor must be summoned immediately.

There are two things I want to say with great emphasis :

1. Always put in silver nitrate drops immediately after the first bath.
2. Never suggest to the patient or her relatives that she is suffering from either of these diseases, otherwise you may find yourself in a Law court.

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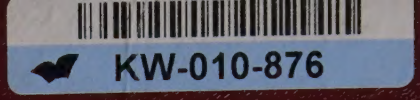
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